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AVIATION

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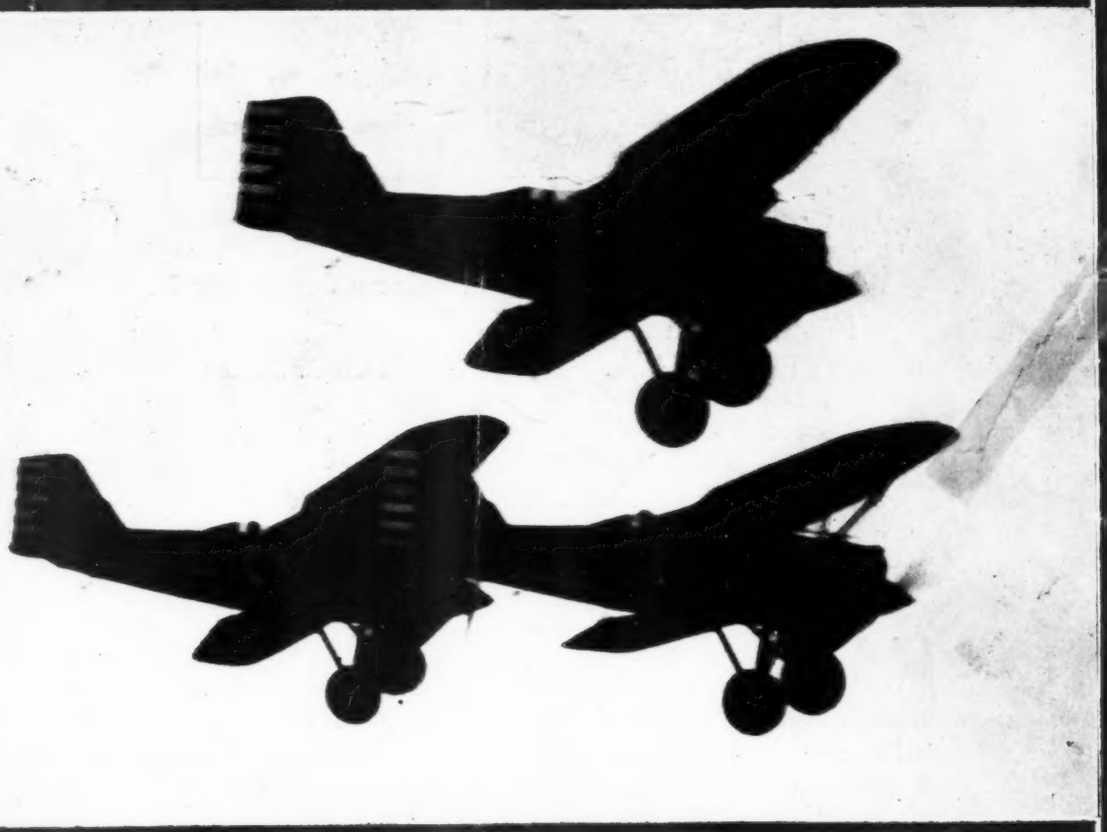
OCTOBER 10, 1927 Issued Weekly PRICE 20 CENTS



Three sky riders passing in review at the 1927 National Air Races

VOLUME XXIII

NUMBER 15

SPECIAL FEATURES

TRAVEL AIR HISTORY
1927 NATIONAL AIR RACES
NEW ENGLAND AVIATION EXPOSITION

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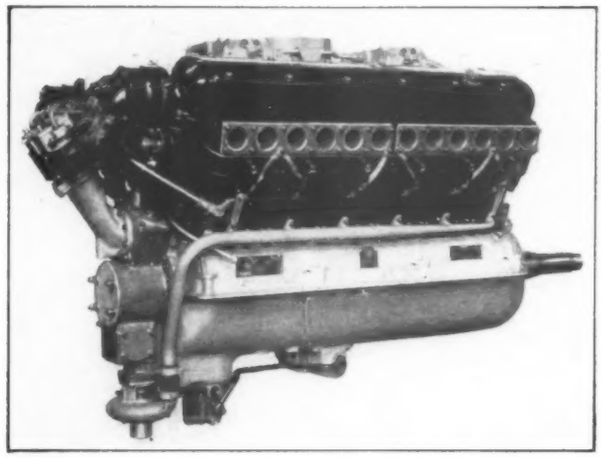
Raising the Standards



THE CURTISS V-1550 MOTOR

What the four entries did at Spokane September 24th

Winners of the Liberty Engine Builders Trophy Race

First, Lt. H. A. Johnson, USA, in Curtiss Falcon
Average Speed 170 MPH

Second, Lt. G. A. McHenry, USA, in Curtiss Falcon
Average Speed 164 MPH

Winners of Free For All Pursuit Ship Race

First, Lt. Eugene Batten, USA, in Curtiss Hawk
Average Speed 201 MPH

Second, Lt. A. J. Lyon, USA, in Curtiss Hawk
Average Speed 189 MPH

When the now-famous Curtiss D-12 motor of 435 horsepower was introduced to the aeronautical industry in 1923, it immediately raised the standards of design for high-performance military aircraft. Its tremendous power, small frontal area, and low weight per horsepower made possible the development of the remarkable American fighting planes which today are acknowledged as the world's finest.

The new 600 horsepower Curtiss V-1550 motor has far more power, less frontal area, and lower weight per horsepower than the D-12. It retains all of the basic design features which have made the D-12 noted for its smooth operation and unfailing reliability.

The V-1550 again raises the standards in military aircraft design

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Offices: Garden City, N. Y. **Factories: Garden City and Buffalo, N. Y.**

Curtiss

One-Two for Laird in the National Air Derby!

Both ships a year old.

These ships flown a total of 200,000 miles.

Both ships with records clear of any major repairs.

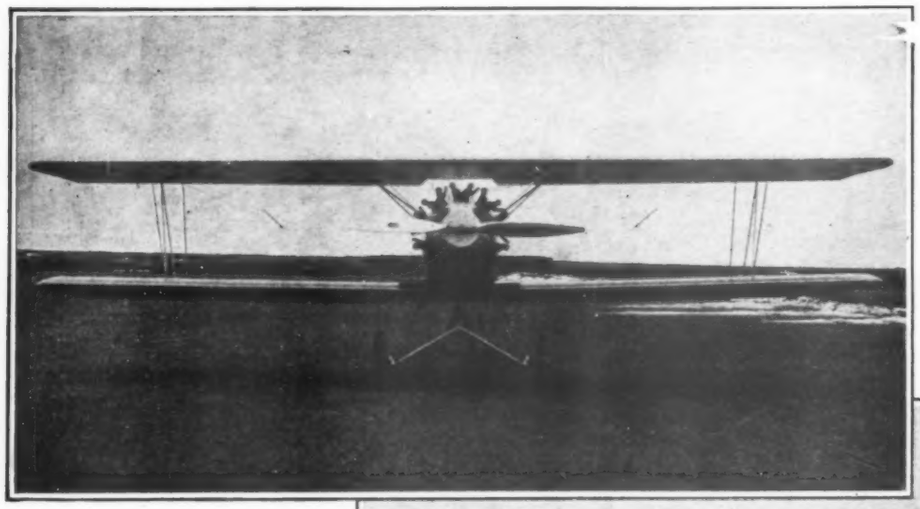
The National Air Derby, New York to Spokane, September 21, was a Laird Sweepstakes!

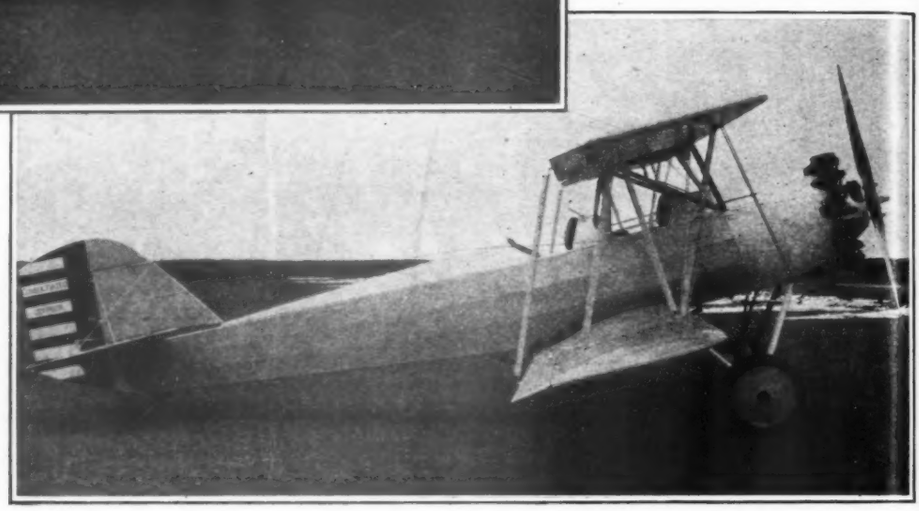
First was taken by C. W. Holman in Laird Commercial C-240. Second, by E. E. Ballough in Laird Commercial C-110. It is significant that both are standard commercial jobs, with a total of 200,000 miles to their credit, and no major repairs of any kind.

It is further interesting that C-110, which placed second, is the same plane used for a record trip between Chicago and New Orleans—1960 miles in 16 hrs. 20 min. And did 70,000 miles air mail service.

Commercial plane users will do well to consider that these ships competed against numerous entries built especially for the Derby. When two entries of standard jobs, built a year ago, can enter an event of this importance and place one-two, commercial job buyers will be interested in further facts.

E. M. LAIRD AIRPLANE COMPANY, 4500 West 83rd St., Chicago, Ill.

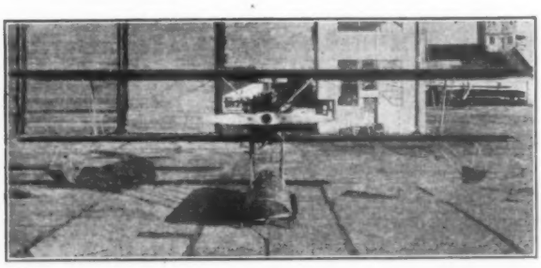


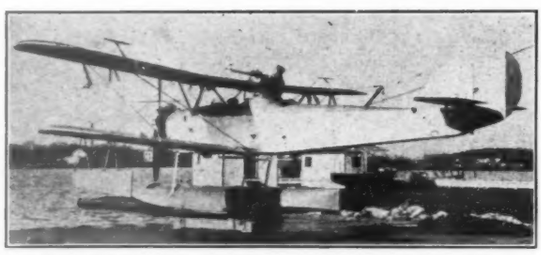


The Consolidated Courier !

A SPECIAL convertible type, using the Wright Whirlwind engine, designed to provide the following: complete dual control for training and practice flying, passenger carrying, stunts of every sort, cross-country flying (with remarkable ability to get in and out of small fields), gunnery practice both fixed and flexible, observation missions with radio. These conditions may be had either as a landplane or as a single float seaplane. Cockpits are very roomy and comfortable, with a large baggage compartment. Controls and installations in both cockpits are so arranged that either may be made quite clear for any desired purpose.

THE CONSOLIDATED COURIER is a proven, developed airplane. It is fast, very airworthy and it embodies the same features which have enabled its predecessors, the CONSOLIDATED TRUSTY and CONSOLIDATED HUSKY, to build such an unprecedented record for safety and durability in long service by the Army Air Corps and the Naval Air Service in training operations. CONSOLIDATED TRUSTY, HUSKY and COURIER parts are practically all identical, making spares interchangeable.





The Consolidated Husky

Designed and constructed by

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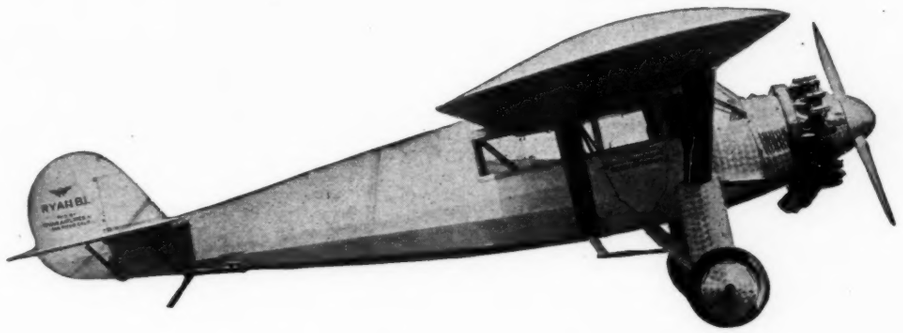
The Ryan Brougham

Five Place Monoplane



Cruising Range 750 miles

Leading a new trend in aeronautical design we have built the Brougham to carry 83 gallons of gasoline, pilot, four passengers, and baggage of five suit cases conveniently stowed out of the way in the rear.

Fully loaded the usual performance of this type monoplane is at once apparent, quick take-off, slow landing speed, high cruising speed, and excellent maneuverability.

Upholstered in silk mohair with the entire cabin insulated with Balsam wool, owners are finding this newest product of the Mahoney Factory not only efficient and economical but unusually comfortable.

"The same model that Colonel Lindbergh flew, adapted to passenger carrying."

WITH SUPER-INSPECTED J-5-C MOTOR $9,700.00

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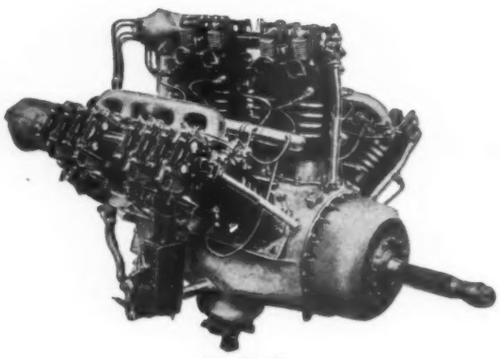
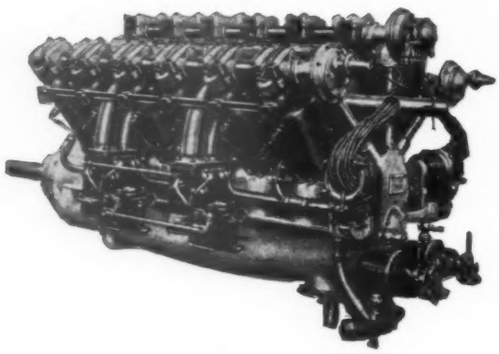
LORRAINE-DIETRICH AIRPLANE ENGINES



450 H. P.
Direct drive or geared



650 H. P.
Direct drive or geared

A Result of Vast Technical Experience

Simple design and construction, economical maintenance and great reliability

LORRAINE-DIETRICH engines are the best known and most widely used in the world. Not only have they achieved brilliant records which have received world-wide acclaim, but they have driven and are driving thousands of planes, both civilian and military, through the daily routine which demands so much of an engine and about which so little is said.

Some Notable Lorraine-Dietrich Performances

1925

34,000 miles in 380 hours of flight — Rome-Melbourne-Tokio-Rome, achieved by Colonel De Pinedo in a S. A. V. O. I. A. flying boat with 450 H. P. engine.

New York-Buenos Aires, by Duggan, Olivero and Campanelli, in a S. A. V. O. I. A. flying boat, with a 450 H. P. engine.

1926

World's altitude record of 39,800 feet, by Callizo, flying a Bleriot-Spad, with 450 H. P. engine.

3,900 miles in 3 days, by Arrachart and Carol, (Circuit des Capitales), in a Potez XXV, with 450 H. P. engine.

6,560 miles in 6 days, 18 hours, Paris-Peking by Pelletier-Doisy and Carol in a Breguet with 450 H. P. engine.

6,500 miles in 9 days, (9 stops) Tokio-Copenhagen by Captain Botved flying a Fokker with 450 H. P. engine.

4,000 miles in 41 hours 45 minutes, total time, Paris-Rome-Tunis-Casablanca-Paris by Pelletier-Doisy and Gonnin in a Potez 25 with 450 H. P. engine.

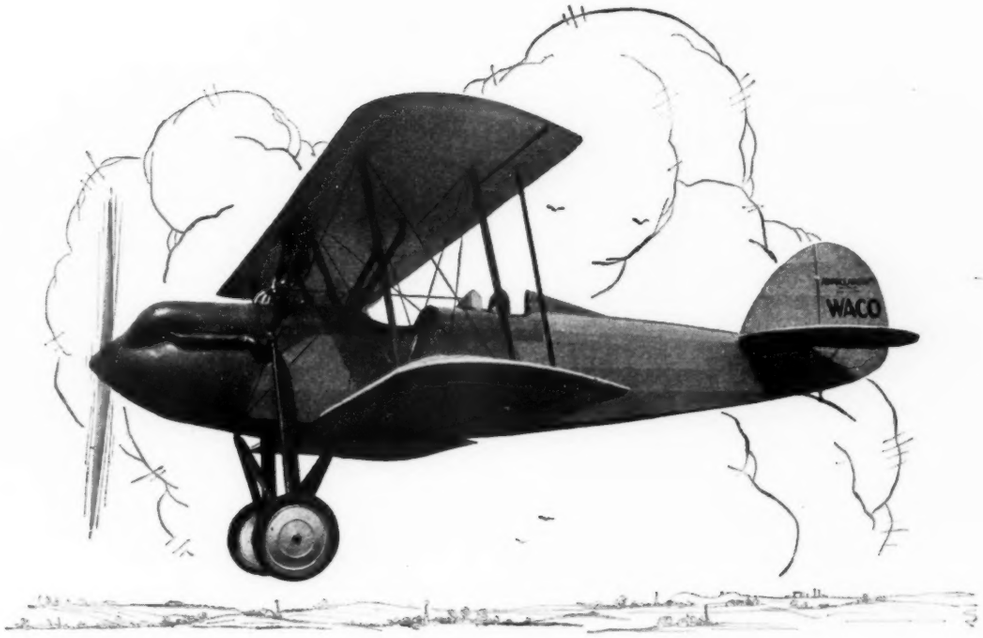
1927

15,000 miles in flying boat across Africa by Capitaine de corvette Guilbaud and mechanic Rapin.

Crossing South Atlantic, from Boloma to San Fernando de Norohna, 1600 miles in a non-stop night flight of 17 hours, 30 minutes by Major Sarmiento de Beires.

SOCIÉTÉ LORRAINE-DIETRICH

ARGENTEUIL (Seine-et-Oise) FRANCE



Years of Successful Experience Built into WACO Airplanes

To create a WACO requires more than money, more than factory facilities, more than engineering genius and wonderful precision in manufacture. It requires the experience that the WACO organization has gained in its ten years of airplane experience.

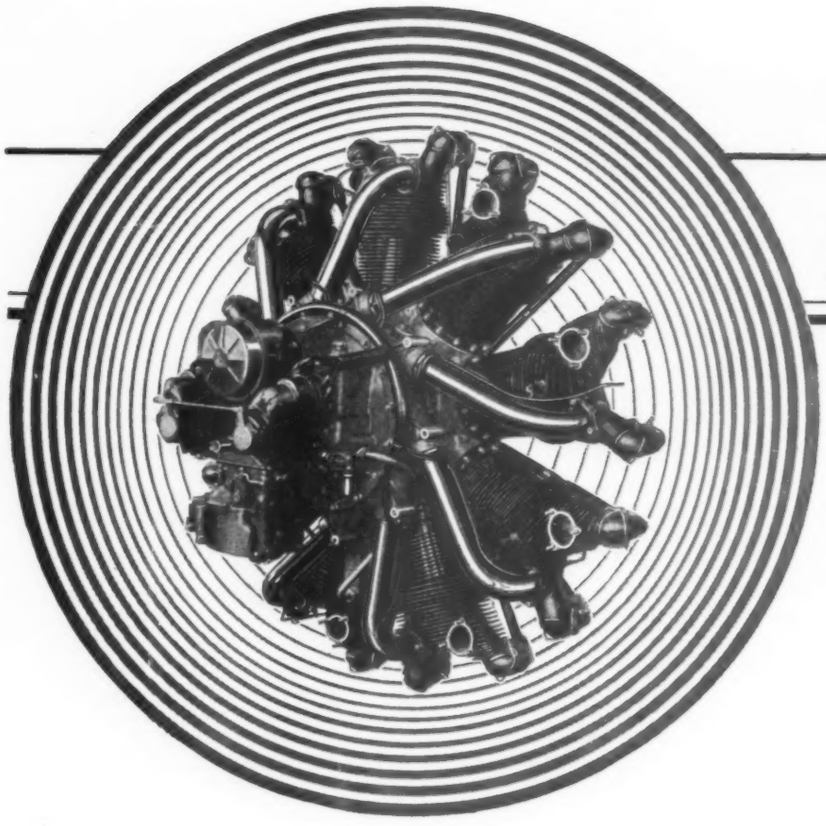
The WACO you see streaking through the skies is a combination of lessons learned in these ten years of development and the application of many production features which were developed in our own plants.

The exceptional beauty, unheard of comfort, unusual stability, above the average top speed, quick take off, and fast climb of the WACO Ten are all results of the organizations experience.

To fly in a WACO is to know that its superior features are those which come through experience and not just experimental luck. It will bring to you a complete understanding of why the WACO is looked upon as the standard of the industry.

A Waco Distributor is near you. Ask us for his name.

WACO
AIRPLANES
MANUFACTURED BY ADVANCE AIRCRAFT CO., TROY, OHIO



Wasp & Hornet

Leadership

One piece Master Connecting Rod and Built-up Crankshaft.

✦

Divided and Forged Aluminum Main Crankcase.

✦

Grouping of all accessories at the rear of the engine.

✦

Complete enclosure of all working parts.

Grouping of all Accessories at the rear of the Engine

Pratt & Whitney engines pioneered with provision for all accessories in one unit, and completely protected by the cowling. Accessibility is excellent, and engine installation and maintenance have been greatly simplified.

In this basic feature the "Wasp" and "Hornet" have materially influenced all modern air cooled engine design.

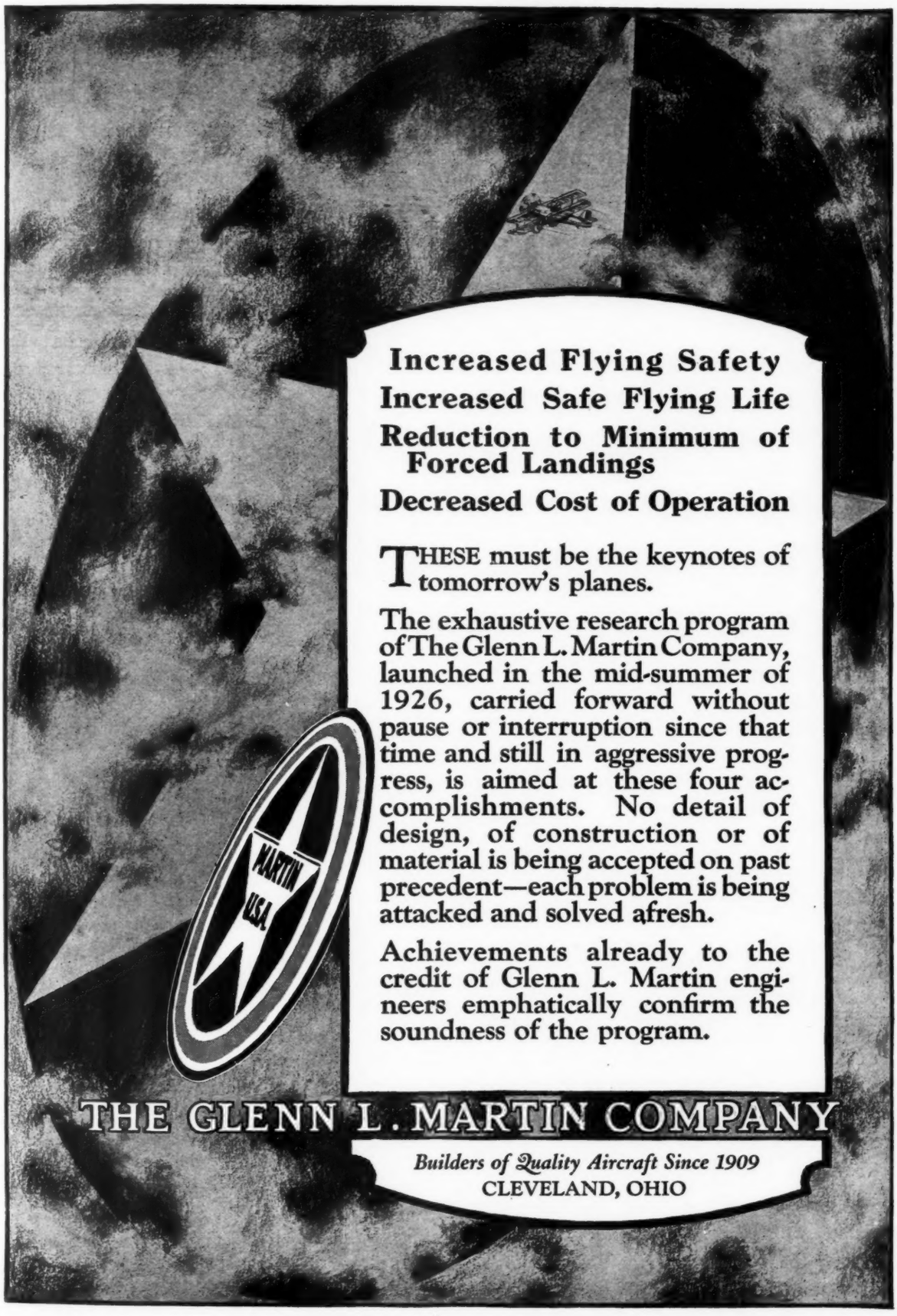
The Wasp
425 H.P.
at 1900 R.P.M.
Weight 650 lbs.

The Hornet
525 H.P.
at 1900 R.P.M.
Weight 750 lbs.

THE
PRATT & WHITNEY AIRCRAFT CO.
HARTFORD CONNECTICUT

PRATT & WHITNEY, U.S.A. DEPENDABLE ENGINES

DEPENDABLE ENGINES


Increased Flying Safety
Increased Safe Flying Life
Reduction to Minimum of Forced Landings
Decreased Cost of Operation
THESE must be the keynotes of tomorrow's planes.
The exhaustive research program of The Glenn L. Martin Company, launched in the mid-summer of 1926, carried forward without pause or interruption since that time and still in aggressive progress, is aimed at these four accomplishments. No detail of design, of construction or of material is being accepted on past precedent—each problem is being attacked and solved afresh.
Achievements already to the credit of Glenn L. Martin engineers emphatically confirm the soundness of the program.
MARTIN U.S.A.
THE GLENN L. MARTIN COMPANY
Builders of Quality Aircraft Since 1909
CLEVELAND, OHIO

Safety wins the Traffic

TRAFFIC volume, as the air mail has proved, always follows a record for safety and reliability. Competing airlines between London and Paris show that passengers select the route with the greatest safety record. The rule of safety applies equally to all air loads. Safety wins the traffic!

The plane which places least dependence on the human element approaches closest to absolute safety. That is the principle on which the Ford Trimotored Transport is designed and built. It reduces dependence on human performance to the minimum.

There is vast reserve power for quick take-offs and climb. This makes maximum allowance for errors in judgment and for overcoming extreme conditions or emergencies. The power is divided into three separate units, any two of which will maintain flight in the rare case of failure of the third. With Wright Whirlwind engines a known and thoroughly demonstrated reliability of power is assured.

The Ford Tri-motored Transport can be controlled on the ground with the certainty of an automobile. Independently acting brakes permit steering without "ground-looping" in cross winds; they bring the plane to a quick stop where small fields demand it, without tendency to nose over; in all work on the ground they dispense with the need of handling crew.

The all-metal construction gives a known-strength material and eliminates the danger of hidden deterioration of materials such as glue and fabric. Careful and frequent inspection is encouraged by the accessibility of all parts of the structure, including the interior of the wings.

Gasoline is kept in tanks suspended in the wings, away from engines, crew and passengers — this, with all-metal construction, removes the fire hazard even under the most extreme conditions.

The inherent stability of the plane permits flight with "hands off" in smooth air and removes any danger of spinning from a stall or a side slip if these should be done either accidentally or intentionally. Here is an advance not only over military ships, but also over all commercial performance.

Even the entrance door has been so placed that there is no excuse for either passengers or crew going near the propellers!

Safety and reliability! These are first considerations in the Ford monoplane —in research, in design, in experimental work, and in the final building. Safety in every condition the plane can meet. No plane has ever placed so little dependence on human watchfulness, care and skill.

THE STOUT METAL AIRPLANE CO.
Division of Ford Motor Company
Dearborn, Michigan

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Vol. XXIII OCTOBER 10, 1927 No. 15

Index to Contents

NEWS ARTICLES AND ITEMS

R.A.F. Pilot Completes 8000 Mi. Flight 871
Inflates Rubber Raft During 'Chute Jump 873
Plan Regular English Channel Air Service 876
To Hold Safety in Aviation Meeting 877
Construction of Airship Hangar Completed 877
Cook's First Air Tour Proves Big Success 880
Schneider Planes Used Reed Propellers 880
Amsterdam to Batavia and Return 881
Seattle-Los Angeles Schedule Announced 881
Guggenheim Authorizes Equipment Loan 882
Austin Co. Completes Modern Hangar 882
Goodyear Air Yacht Again in Operation 882

FEATURES AND DEPARTMENTS

Editorials 865
The 1927 National Air Races 866
The New England Aviation Exposition 872
Travel Air History 874
The New Consolidated Instrument Board 877
The Travel Air Transport Monoplane 878
The Central States "Monocoupe" 895
Aircraft Trade Notes 898
Aircraft Patents 900
Foreign Aeronautical News Notes 901
Side Slips 902
Airports and Airways 903
U. S. Air Forces 912
Publisher's News Letter 914

ADVERTISING INDEX 913
WHERE TO FLY 915-916
AIRCRAFT SERVICE DIRECTORY 918-919-920
CLASSIFIED ADVERTISING 921-922

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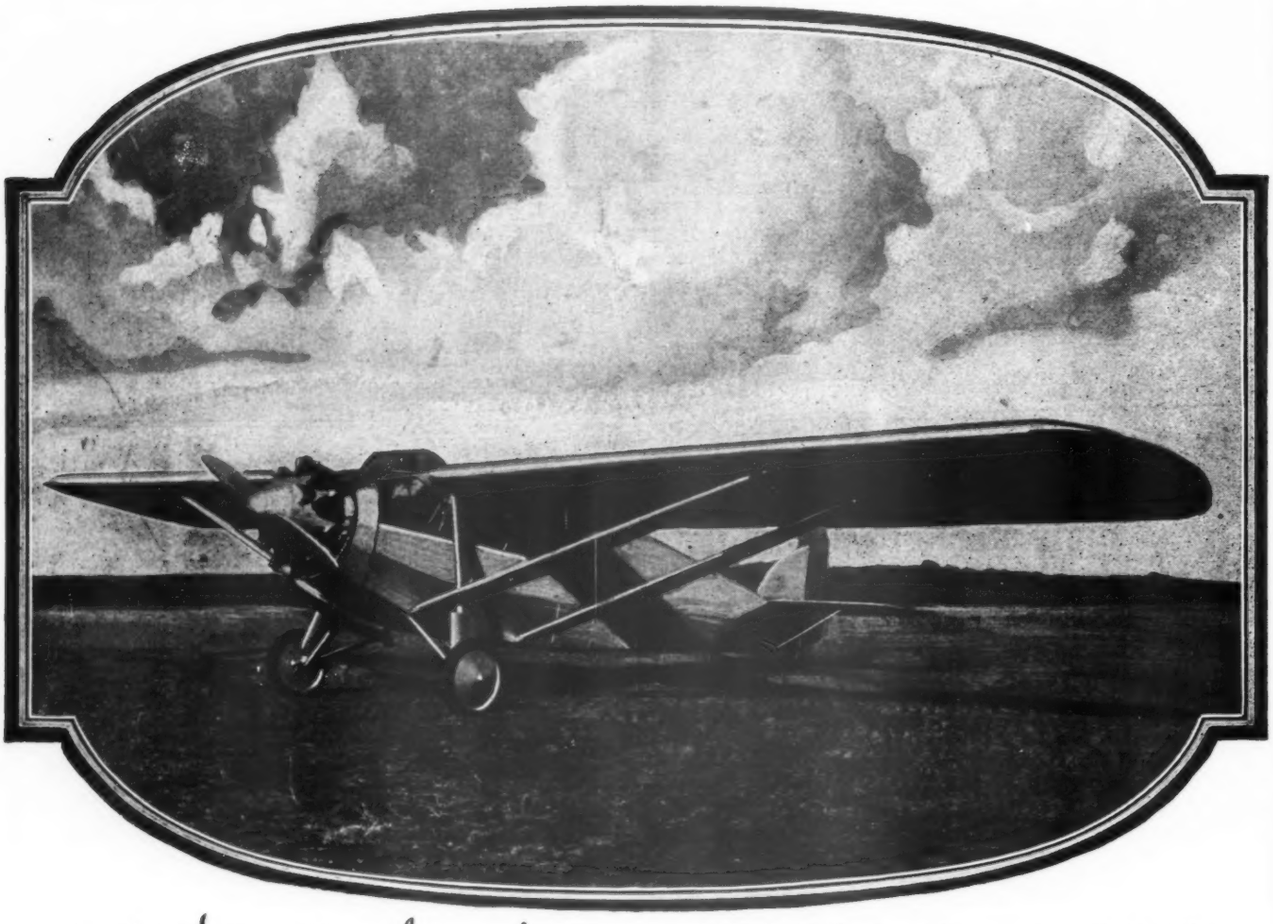
With the Editor

A fair idea as to the progress in the art of manufacturing airplanes that has been made during the last three years can be found in the article dealing with the history of the Travel Air Mfg. Co. of Wichita, Kan., that appears on page 874 of this issue of AVIATION.

This company, headed by Walter Beech, 1925 and 1926 winner of the Ford Reliability Tour, has twice been forced to increase its manufacturing facilities in order to cope with increased business. And now, according to the officials, still another factory expansion is to be made, which, when completed will make the Travel Air plant one of the largest airplane factories in the world.



The Travel Air Cabin Monoplane powered with a Wright Whirlwind 200 H.P. air-cooled Engine. With 750 lbs. pay load it takes off in 12 seconds, makes 125 m.p.h. and cruises at 104 m.p.h. with the engine turning only 1550 r.p.m. Brakes are provided and the cabin which is heated and sound-proofed has comfortable accommodations for either four or six passengers.

That's why More Pilots fly them!

SIXTEEN airplane manufacturers selected Wright Whirlwind 200 H.P. air-cooled engines for nineteen different commercial plane models during 1926.

Single engine planes, multiple engine planes, passenger or freight transport planes, cabin or open cockpit planes, seaplanes, and flying boats are equally efficient with Wright Whirlwind Engines.

The product of this Organization has not only kept pace with the necessity for the greater dependability in present day aviation with distinct economies in fuel consumption and repair costs that are comparable with the best automobile practice, but has frequently been the inspiration of distinct advances in both design and performance of America's most efficient aircraft.

—and in 1926 Wright Whirlwind Engines flown by private owners and commercial transport companies established the remarkable record of 1,750,000 miles in the air in perfect safety.

Send for Bulletin No. 8.

WRIGHT AERONAUTICAL CORPORATION, *Paterson, N. J., U. S. A.*

WRIGHT
Whirlwind
A SUPERLATIVE AERONAUTICAL
engine

AVIATION

The Oldest American Aeronautical Magazine

Vol XXIII OCTOBER 10, 1927 No. 15

Shifting Pilots

UNDER NORMAL conditions one airplane flies and controls pretty much like any other airplane. So long as everything is going well a pilot can step from a small two seater plane into a weight carrying transport plane and fly in a very satisfactory manner. It is only when a plane is very heavily loaded, when visibility is bad or when the engine stops suddenly, that each plane handles in an entirely different manner. And it is exactly under these circumstances that the pilot must know every trick and peculiarity of the plane.

During the rush of this summer's business almost all the aircraft operators have at one time or another found themselves short of pilots. It is hard to turn down ready money and certain firms have employed any pilot who happened to be around without enquiring carefully as to his qualifications. More reputable concerns have insisted on licensed pilots and have gone into their past history to ascertain their ability as fliers. Even this however is not enough. Experience has shown that when emergencies arise that the pilot must be entirely familiar with every detail of the piloting of the particular plane in which he is to fly and to do this he must recently have had a very considerable amount of flying in that particular type of plane.

Perhaps the point in question could best be illustrated by a comparison with automobiles. Many good automobile drivers would find themselves at a complete loss if they were suddenly asked to drive a big motor truck through crowded traffic and in the same way the pilot who has been accustomed to a plane which handles very quickly will make mistakes at crucial moments when he is requested to fly a plane which is slow on the controls and has a large moment of inertia.

Give Them A Ride

AS FACTORIES get larger they become less personal and there is apt to be less pride of product unless efforts are made to arouse the interest of the employees in the work which they are doing. Careful workmanship in the building of planes is perhaps more important than in any other product and is the keystone of the ultimate success of an airplane manufacturing concern.

In the days when airplanes were built in really small quantities the completion and test flight of every airplane was an event and often the whole factory was given or took a holiday when the test flight was made. When two or three planes a week are being turned out this is of course impossible but efforts can and should be made to keep the men alive to the importance of their work. This can be and is done, mainly through the influence of those directing the factory and especially the shop foremen. However direct contact with flying is the best way to arouse the interest of the men in the planes which they are building. A man who spends his days welding a steel fuselage will ultimately lose sight of the fact that the recalcitrant mass of material on which he is working will ultimately be soaring through the air.

However, if he knows that he or some of his friends will be dependent for their lives on the thoroughness of his work he will take a renewed interest. The employees of a factory are usually keen to ride in the planes which they build and giving them an opportunity to do so makes their work more attractive to them and they are apt to stick by the game rather than to transfer to some less romantic form of industry.

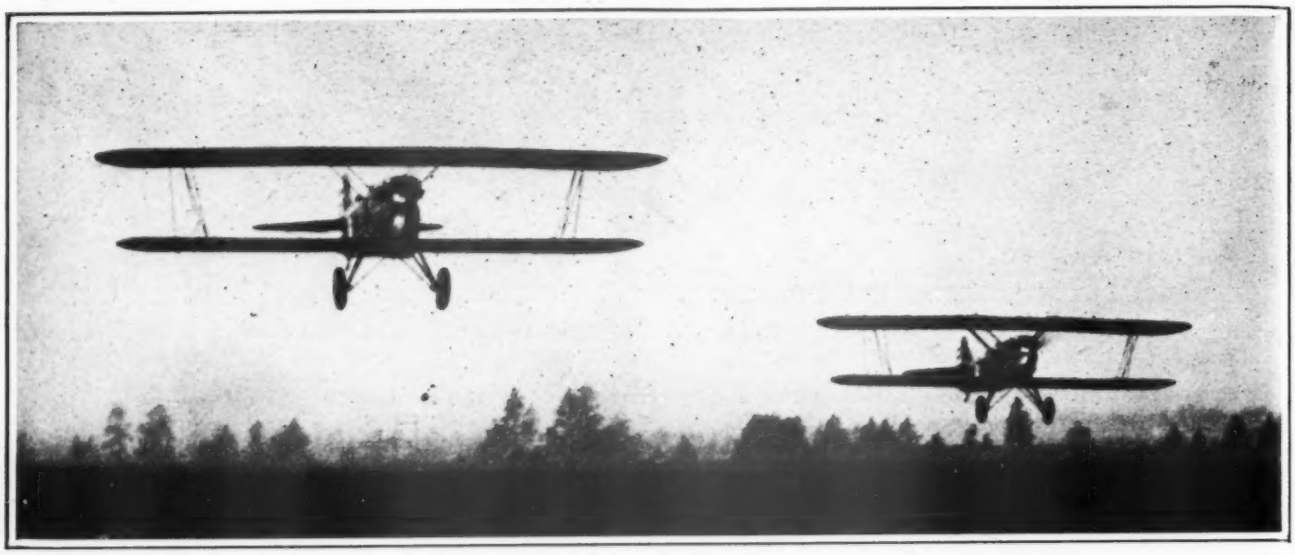
Several firms hold an annual outing in which employees and friends of the employees are given free rides. In other shops employees are allowed to go up whenever opportunity offers.

In many factories however no arrangements are made for keeping employees in contact with actual flying. This condition is sometimes due to dislike of disturbing the routine of work, or through fear of accident, but more often it is due merely to the trouble that is involved in arranging for the flights. It is curious that no firm has adopted the slogan that every employee is airminded and has ridden in the planes which the company builds.

One Plane Hangars

AS A result of the increasing popularity of civilian aviation and a proportionate increase in the purchase of airplanes for private use there is soon to arise the problem of suitable housing facilities for civilian owned planes. At present sufficient space is available at the majority of flying fields, but the day seems not far distant when each civilian will own his own particular one-plane-hangar, and the large hangars will be used exclusively by transport lines. In other words, the housing of airplanes will soon be a bit similar to the housing of commercial and privately owned automobiles.

There seems much to be studied in the design of a one plane hangar, particularly from the standpoint of wasted space. Perhaps this question will be partially solved by a universal adoption of the folded wing design of planes. And then again, perhaps the paramount item will be the minimizing of the cost of labor and materials.



The start of the Free-For-All Military Pursuit Ship Race.

The 1927 National Air Races

OLD TIME aviators, followers of aviation events as well as recent converts to the art are all loud in their praises of the highly interesting and exceptionally well conducted program of the 1927 National Air Races, held at Felts Field, Spokane, Wash., during the week of Sept. 19-25.

Every possible detail that could be foreseen had been taken care of. Felts Field itself had been put into splendid condition for the meet, and rains a few days before the races started left it smooth and hard. The field was fenced off to keep the crowds from over-running the space set aside for fliers and a strong force of national guardsmen was on duty throughout the week to keep the airdrome clear, see to parking of automobiles in the spaces reserved therefore, and do other like work.

Highways for a distance of two miles all around the field were closed except to cars belonging to residents within that area or bound for the airport with passengers or supplies. This disposed effectually of the "free sight-seer" evil and everyone who wanted to see the races was compelled to pay the necessary admission fee.

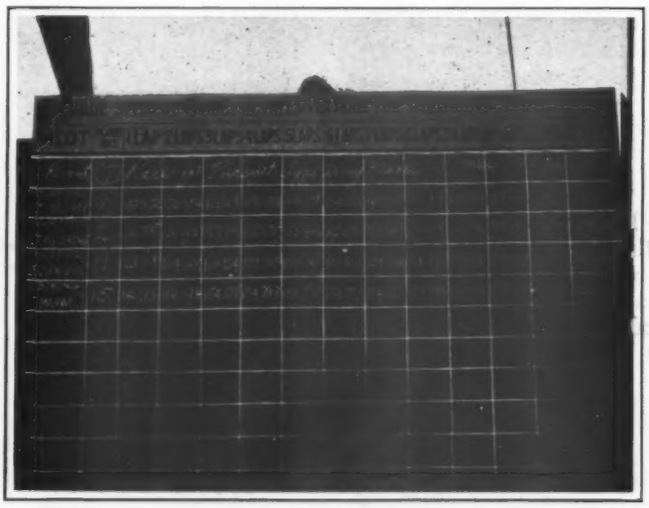
Visiting pilots and their mechanics were provided with automobile transportation to and from the field, which is about three miles from the city, thousands of townspeople threw open their homes to care for the crowds of visitors and the city as a whole gave a demonstration of western hospitality such as has seldom been witnessed.

Everything that should be at the field was there. While the plastering of the fine new administration building had not been completed, the lathing had, and this served as temporary partitioning so that the structure could be occupied. There was a field hospital with good ambulance service and an efficient fire department for crash work.

Press arrangements, handled by Ellsworth French, were unusually good, both from the standpoints of convenience and efficient location, and a public address system which functioned perfectly served to keep the crowd informed of all developments.

The general arrangements were handled through committees of the air derby association, working with the National Aeronautic Association. Major John T. Fancher of the 41st division Air Service, Washington National Guard, himself a flier of considerable reputation, was the active executive.

There were two remarkable things regarding the 1927 National Air Races. 1. There were no accidents of consequence. 2. The races very nearly paid their own way. Total expenses were estimated at the close of the meet at $122,500, of which $60,000 was prize money. The gate receipts, a queen contest and minor revenues totalled approximately $110,000, thus leaving the guarantors with but a small sum to pay.



The score board—object of all eyes at the close of each event.

Special tags were issued to delivery trucks, the automobiles of residents, official cars, service cars and "courtesy" cars having occasion to go into the enclosed area and no vehicle was permitted to approach the airport without one of these. Parking spaces were provided in fields near the port for cars used by the spectators.

Twelve thousand reserved seats and more than 100 boxes, seating six persons each, were provided on the field and were crowded every day of the meet but one, when threatening weather cut down the attendance somewhat. Many thousands of spectators stood through the program each day.

The races attracted Indians from nearby reservations, broad-hatted cattlemen, ranchers and thousands upon thousands of residents from towns as far away as Seattle and Portland. Special trains were run to bring students from the Universities of Washington and Idaho on the final day of the meet.

The success of the affair, which Spokane residents declare has been worth many times its cost in advertising their community and bringing people to the Inland Empire surrounding the city, is due almost entirely to two things—good organization and the unremitting labor of Spokane's leading men.

Events were started promptly at the hours set; the programs were kept going; there never was a dull or an idle moment from the first starting bomb to the close of the races. There has not been an iota of adverse comment anywhere on the conduct of the meet or the value of the entertainment given the crowds.

One of the most spectacular feats of airmanship ever staged, and one which observers said was well worthy of mention in the same breath with Chamberlin's famous one-wheel landing, was achieved at the air races on Sept. 21 by Lieut. George Towner of the Marine Corps.

Lieutenant Towner, aloft with others of the Marine Corps in a flight of Wasp powered Curtiss Hawk pursuit planes, was flying upside down directly in front of the crowd. Although he was rapidly losing altitude, Lieutenant Towner stated afterwards that he thought that he had sufficient height to complete a half loop toward the ground instead of rolling over into a normal position. He attempted the half loop but with his nose just starting to rise, his undercarriage struck the ground and was completely wiped off and the right lower wing so badly smashed that it hung useless as the plane with full throttle zoomed 25 to 30 ft. in the air over the heads of the spectators.

Towner circled the field and made a perfect landing on the tailskid and the lower cylinders of the engine, plowing up the ground for about 50 feet as he landed. Before anyone could reach him he was out of the cockpit, had seized his fire-extinguisher and was running around the plane in readiness to quench any fire that might start. None, however, appeared. The fuselage of the plane was scarcely injured and mechanics were able to turn the engine over by hand immediately after the plane had landed.

Something new in the way of speed for commercial planes was shown in the free-for-all race for commercial planes when Pilot James Ray pushed a Pitcairn Sesquiwing around the ten lap course once at slightly more than 141 m.p.h. and maintained an average of 136.145 m.p.h. for the eighty miles comprising the contest.

The Sesquiwing was the only plane in the race which did not have a Wright Whirlwind engine. It was powered with a Curtiss C-6.

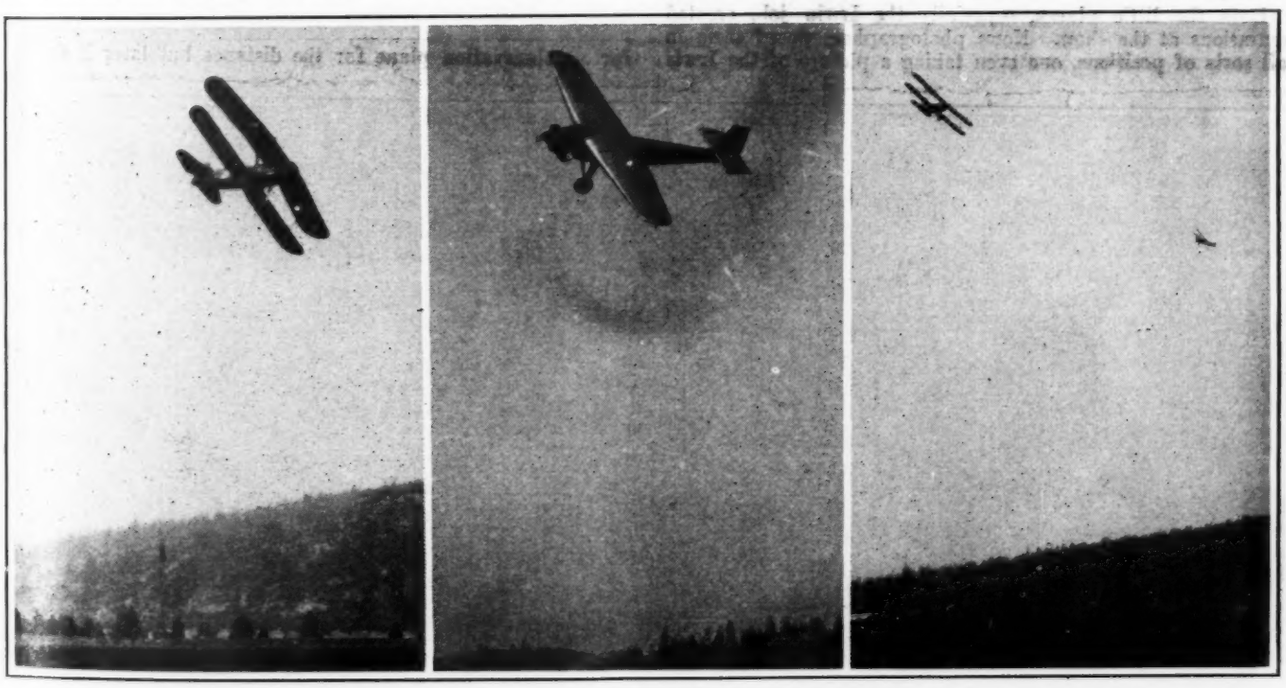
Second and third places went to a pair of Lairds, one entered as a Laird Commercial and the other as a Laird Whirlwind. The pilots were E. E. Ballough and C. W. "Speed" Holman, respectively second and first in the Class A New York-Spokane derby.

Referee E. A. Goff, Jr. (left) takes time out to converse with Maj. John T. Fancher, managing director of the National Air Derby Ass'n.

Ray flew a splendid race, crowding the pylons just enough and banking his speedy little plane around them in a style equalled by few of the crack pursuit pilots.

The race carried $2,500 prize money and the winner also won the Aviation Town and Country Club of Detroit Trophy. It was limited to planes powered with engines of 80 cu. in. displacement or less and flown by civilian pilots.

How good designing and flying have enabled planes powered only with OX5 engines to maintain speeds of approximately 100 m.p.h., with one passenger aboard and around



On the left is a Curtiss "Falcon" flattening out after rounding the west pylon. In the center is the Hamilton Metalplane banking into a turn. And on the right is an action picture of the Air Transport Speed and Efficiency race.

a closed course was demonstrated in the Western Flying Trophy event.

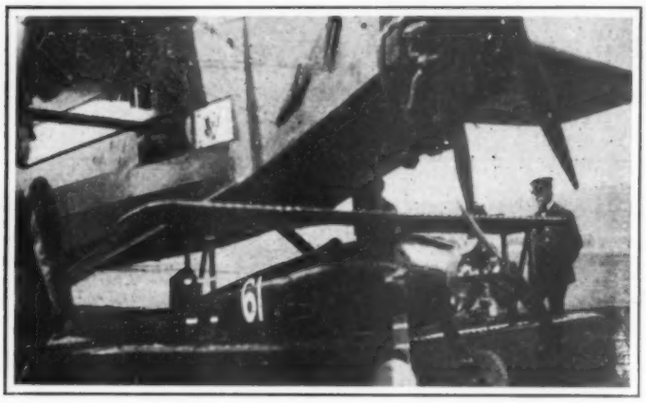
Every plane in this race was powered with the old reliable Curtiss war time engine and all three of the money winners were of different makes. First place went to Eugene Detmer, who put his Travel Air around the eight ten miles laps of the race at the rate of 102.555 m.p.h.

Paul Richter, Jr., piloting an Eaglerock, was second with an average speed of 99.993 m.p.h. and C. W. Meyers, winner of the Class B derby from New York, was third in a Waco 10 which rolled up 98.760 m.p.h.

Each plane carried a contest load of 340 lb. Prizes totalling $2,000, with half that sum going to the winner of first place, were awarded.

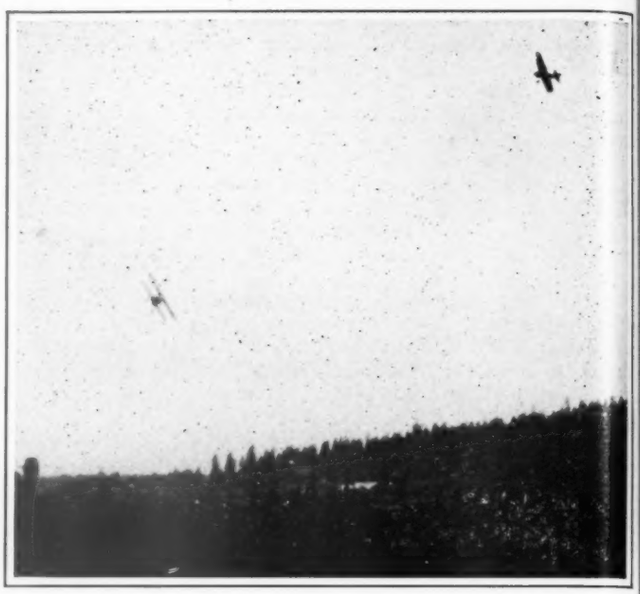
Breaking of a wheel on the Irwin Meteorplane left the Heath Parasol the only light plane entered for the Aero Digest and the Dayton Daily News light airplane trophies.

As a consequence E. B. Heath himself took his little blue biplane entrant into the air for a sixty mile flight in the morning, and a second of half that distance in the afternoon, and pulled down two $500 prizes. He gained the Aero Digest trophy as a permanent possession and the Daily News trophy for a year.



A Fokker tri-engine stands watch over the Irwin Meteorplane.

Both the little planes, especially the Irwin job, created sensations at the show. News photographers posed them in all sorts of positions, one even taking a picture of the Irwin plane poised on a man's shoulders with an Army tri-engined Fokker as a background. The great transport weighed almost exactly 50 times the little fellow's 175 lb. displacement.

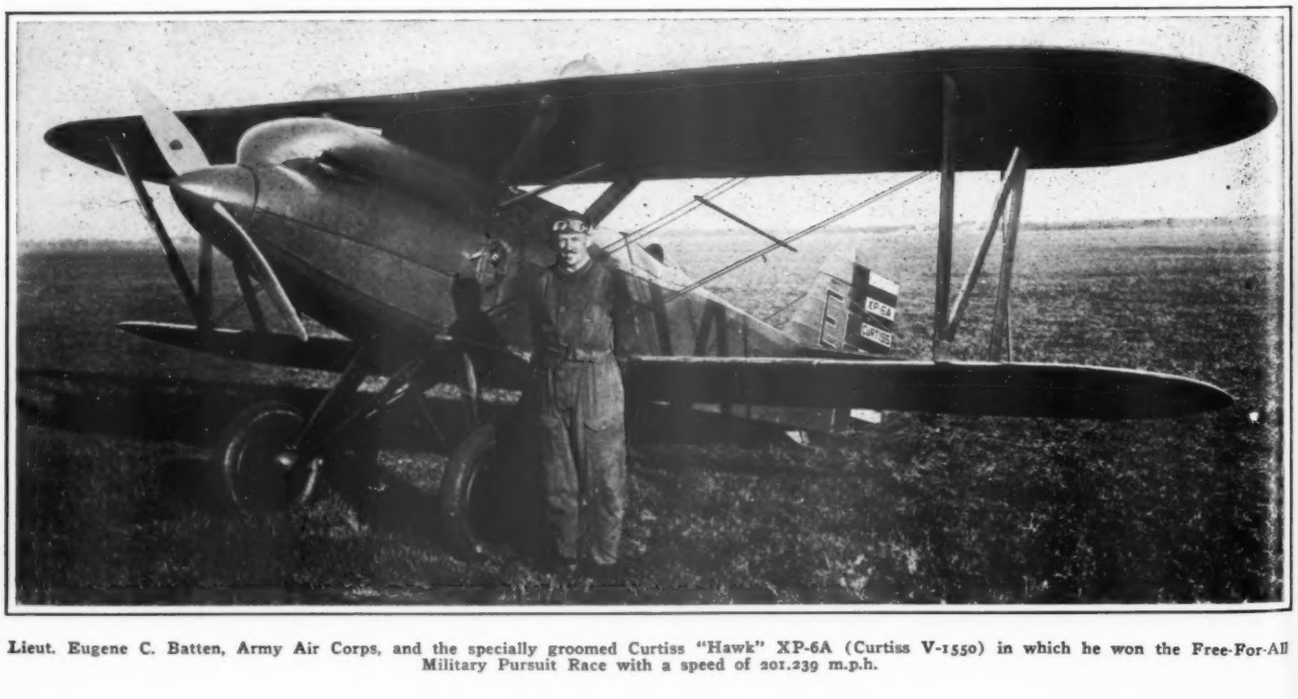


Action picture taken during a pursuit plane race.

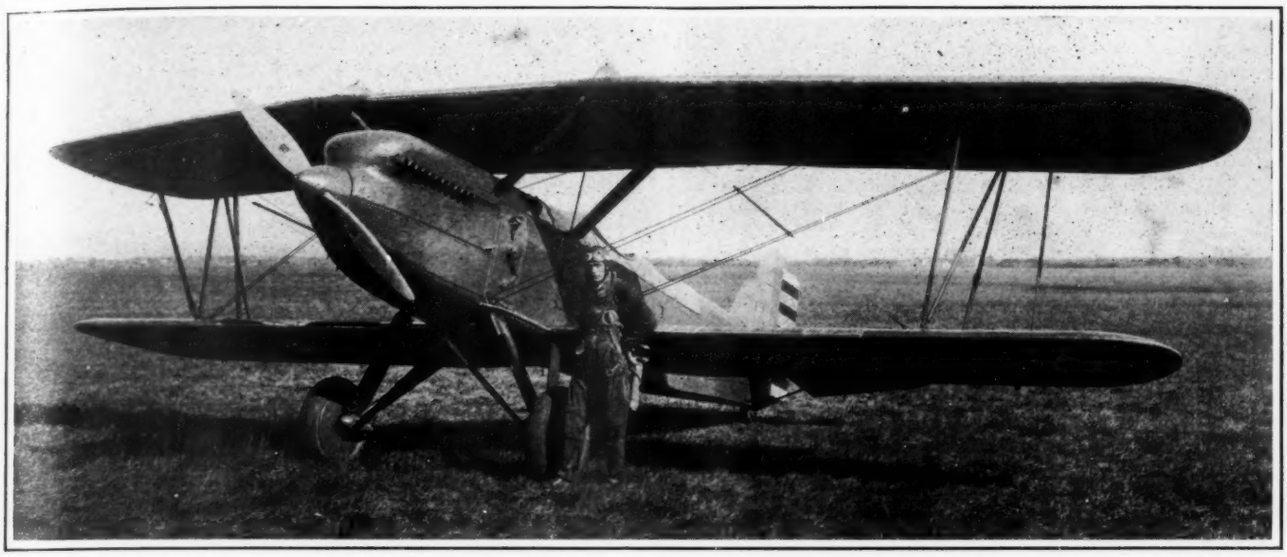
The Army's specially groomed Curtiss Falcon, X013A, powered with the new Curtiss V1550 engine, had an easy time winning the Liberty Engine Builders' Trophy. This two-place plane rocketed over the 100 mi. course at an average rate of 170.156 m.p.h. under the expert piloting of Lieut. Harry A. Johnson.

Second place went to the X013, a similar plane except for its radiator, piloted by Lieut. George A. McHenry, whose time was 162.039 m.p.h. Third and fourth went to the following: Lieut. W. R. Taylor, Douglas O2C, 129.395 m.p.h., and Lieut. V. A. Grant, Douglas O2C, 123.488 m.p.h. Each plane was required to carry a contest load based on engine displacement and in addition 340 lb. of crew weight.

When Lieutenant Johnson's figures first were announced it was assumed he had broken the world and American records for an observation plane for the distance but later it devel-



Lieut. Eugene C. Batten, Army Air Corps, and the specially groomed Curtiss "Hawk" XP-6A (Curtiss V-1550) in which he won the Free-For-All Military Pursuit Race with a speed of 201.239 m.p.h.



Lieut. Harry A. Johnson, Army Air Corps, winner of the Liberty Engine Builders' Trophy, and the Curtiss "Falcon" XO-13A (Curtiss V-1550) in which he averaged 170.156 m.p.h.

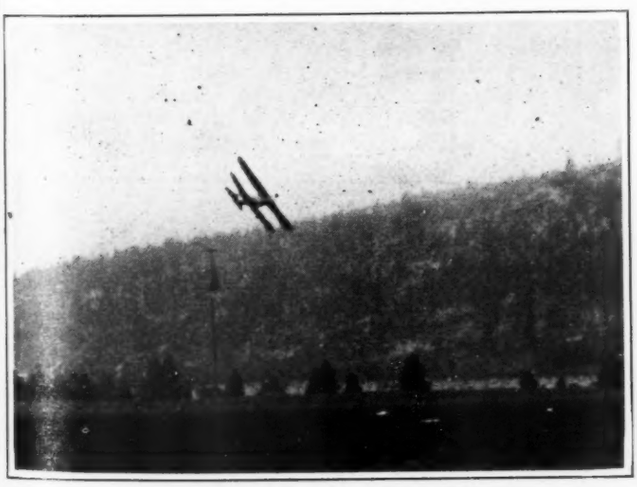
oped he had not had the necessary weight aboard. Both his plane and his piloting created something of a sensation, as he flew a practically perfect race.

His times varied very slightly from lap to lap and clung to a point about eight miles per hour faster than those reached by the other Falcon in the race, which lacked the advantage of the wing radiator that cut down wind resistance on the X013A.

The Army on the day following the races attempted to lower the world record for an observation plane carrying 500 kilograms over a 500 kilometer course with this plane, but Lieutenant Johnson was flagged down after covering about half the distance.

The race was over a special course of 32 kilometers laid out due west from Felts Field.

The plane used was the X013A, powered with one of the new Curtiss V-1550 engines, with high compression. Test



A Navy "Hawk" rounding the west pylon at the National Air Races, Spokane, Wash.

flights indicated the craft had a speed of 200 m.p.h., or rather better than the pursuit ships of a few years ago.

The plane is a standard Curtiss Falcon except for the substitution of wing radiators instead of the tunnel type radiator. Partial specifications of the plane follow:

Span, 38 ft.; Chord, 70 in. upper, 54 in. lower; Gap, 64 in.; Dihedral, 0 deg.; Stagger, 43½ in. at center section (The upper wing has a nine degree sweepback); Wing, Clark Y section; Angle of incidence, minus one degree; Wing and power loadings not available for this type; Weight, approximately 4,400 gross; Factor of safety, 8.5.

The engine is the chief novelty of the plane, having a horsepower of 700 with the high compression used in these races and of 600 under normal compression. It is a twelve cylinder V type with 1550 cu. in. displacement and developed from the same basic design as the Curtiss D-12, though very compact and showing a decrease in frontal area. It fits in the same engine bearers as the D-12 so that it would be possible to replace all the D-12 type engines in use with this new power plant giving approximately 165 additional horsepower at the same revolutions per minute, 2,400. It is only 40 pounds heavier than the D-12.

Comparison of some of the major characteristics of the two engines follows:

	D-12	V-1550
Cylinders	12	12
Bore and stroke	4½ x 6 in.	5⅛ x 6 in.
Displacement	1145 cu. in.	1550 cu. in.
Length overall	56¾ in.	51 in.
Width	28¼ in.	26 in.
Height	34¾ in.	35¾ in.
Weight	680 lb.	720 lb.
Weight per horsepower	1.56 lb.	1.20 lb. normal or 1.03 lb. approx.

The additional weight comes partly from the increased size of crankshaft and connecting rods, which have been made larger to carry the additional power. Valves also are made larger. A single double Splitdorf magneto is used instead of the two magnetos applied to the D-12.

The reduction in the width of the engine is effected through a re-arrangement of the camshaft drive gears.

The cylinder block construction in the 1550 involves use of an open sleeve, screwed into the aluminum head, whereas the D-12 employs a closed-end sleeve, with valves mounted in the closed steel head. The valves of the V-1550 are mounted in bronze inserts in the head.

This engine appeared in four planes entered in the different races by the Army, two pursuit and two observation.

One of each type was practically the standard Curtiss craft of its class, while the other in each class was equipped with Curtiss wing radiators.

The Curtiss wing radiator used by the Army in the races was developed from a design which was used first in Casey Jones' Oriole in 1920. It comprises in the main a flat base plate of brass and a corrugated plate of brass, soldered together to form a series of minute channels.

These plates are made up in sections which extend from front to back of the wing. As far as ascertainable they do

not affect the wing lift and their employment naturally reduces the head-resistance of the plane and permits better streamlining by eliminating other radiator.

They afford an enormous cooling surface, so much, in fact, that one mechanic facetiously remarked the planes could have a "steam cooling system" and still function perfectly. The cooling system contains approximately 15 gallons of water, whereof some six or seven is in the engine and the rest is spread through the thin radiator sections and in headers at the leading edges of the wings.

The radiator sections in the X013A, for instance, if placed side by side would extend over a breadth of 27 ft., their average length being about 60 in.

In the Free-For-All Military Pursuit Ship Race for the Spokane Spokesman-Review Trophy, Lieut. Eugene C. Batten of the Army Air Corps piloted his fleet Curtiss XP-6A (Curtiss Hawk) powered with a Curtiss V-1550 engine and equipped with wing radiators to first place at the terriffic speed of 201.239 m.p.h.

Makes One Course Test Flight

All of Lieutenant Batten's attention during the week had been centered on his little racing plane. He took it up once for two rounds of the course early in the week and then placed it in the hangar. On the morning of the race it was run out on the line and rested there all day while Navy men looked it over and wondered what it would do.

From the first lap it was evident that there would be no great competition for Lieutenant Batten if his tender wing radiators stood the strain. He overhauled plane after plane, the sun shining on the glittering wing as it was hurled through the air by its 700 hp. engine. Its noise was deafening.

The only man flying close to Batten was Lieut. A. J. Lyon in a Curtiss Hawk, with the tunnel radiator under the nose of the plane. This was a standard plane, except that it had the same engine Batten was using, and it averaged 189.608 m.p.h. through the race.

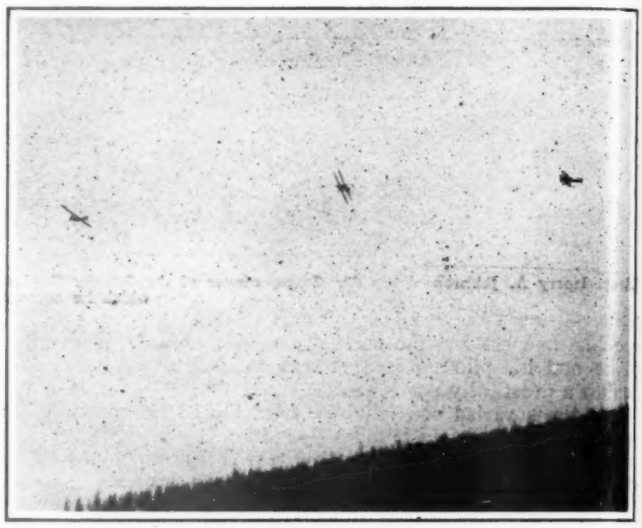
Although Army planes finished in first and second places, two Navy planes were third and fourth. They were Boeing fighters, with Packard engines, piloted by Lieutenants Thomas P. Jeter, third with a speed of 176.940 m.p.h., and Gerald F. Bogan, fourth with 175.937 m.p.h.

"The race for flying freight cars" as the announcer facetiously termed the Packard Motor Car Trophy for large capacity military airplanes was won by a Fokker tri-engined transport piloted by Lieut. H. W. Beaton, who flew the big plane to Spokane from the east. His power plant was a trio of Wright Whirlwinds.

Beaton's time was 115.198 m.p.h. Second and third places went to Douglas transports powered with Liberty engines and piloted by Lieutenants W. H. Doolittle, who flew a C-1, and T. J. Koenig, who flew a C1C. Their times were 100.243 and 81.285 m.p.h., respectively.

The spectacle of these giant craft banking around the pylons in weighty imitation of pursuit ships filled the crowd with joy and afforded the announcer opportunity for considerable merriment. He nicknamed the Fokker "Grandma" and "the flying elephant."

Each plane carried a contest load based on its engine displacement, plus a crew weight of 340 lb. The contest was limited to planes having wing areas of 600 sq. ft. or more and capable of carrying at least 2,000 lb.

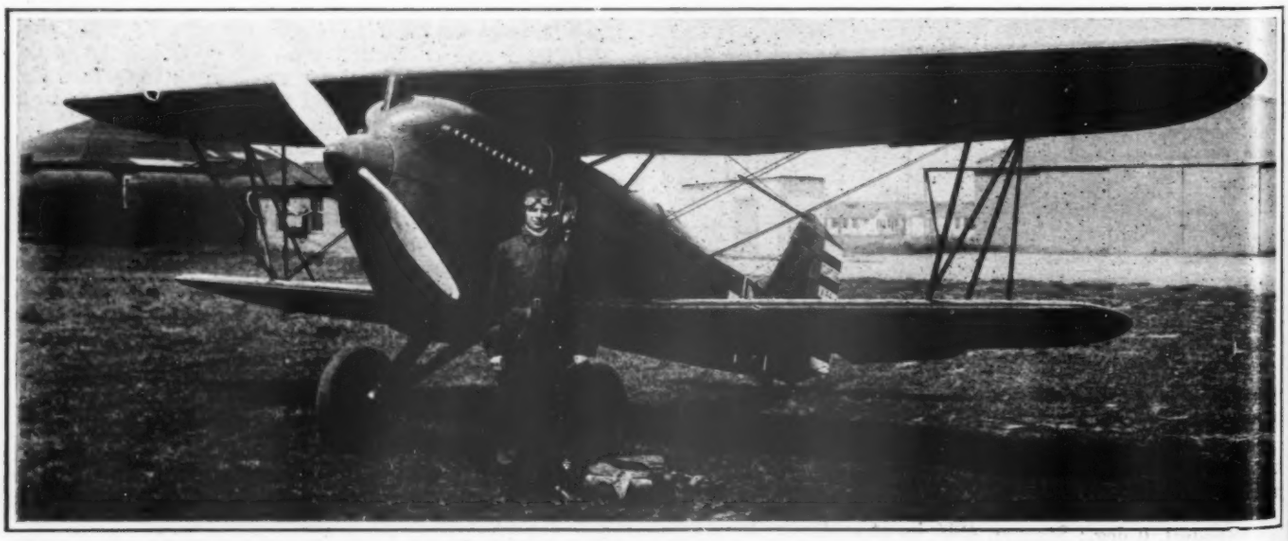


Three planes in the commercial free-for-all event taking the turn together.

The parachute, lately come to be regarded as the life-preserver of the air, was much in evidence, though not one necessary occasion for one's use developed.

There were parachute jumping contests daily, with money prizes for those landing nearest to the circle on the field, and several exhibition jumps. One of the most thrilling of these was made by Hilda Drahold, a Tacoma high school girl, who had jumped only once previously.

This girl went aloft in a plane with Stub Campbell, professional jumper, walked out on the wing, attached her harness to the professional chute used by Campbell and jumped.



Lieut. Alfred J. Lyon, Army Air Corps, and the Curtiss "Hawk" XP-6 that he flew to second place in the Free-For-All Military Pursuit Race. His speed was 189.608 and the plane was powered with a Curtiss V-1550 engine.

A breakway string failed to give and she hung suspended under the wing until Campbell could crawl out to her, and, clinging by one hand to a strut, reached down beneath the plane and break the string, thus releasing the chute from its pack.

The plane used was powered only with an OX5 engine and Campbell spoke feelingly afterward of the skill of the pilot which kept the craft from going off on one wing while both his weight and that of the girl were placed so far off center.

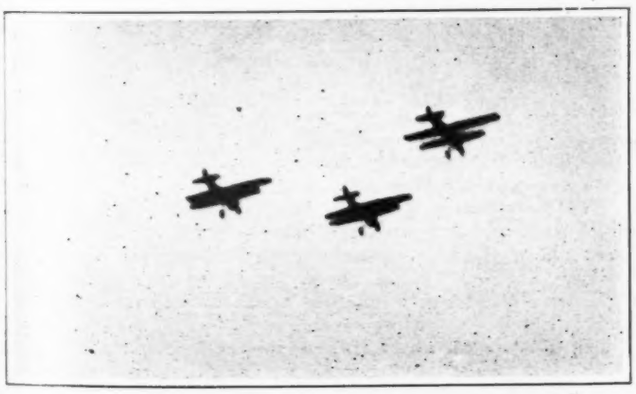
In another exhibition, nine men jumped from a single Douglas transport within 18 seconds. Harry Dodge, a contestant, twice jumped from a looping plane. Several times there were four or more jumpers in the air at once. On no occasion did any chute fail to open promptly.

Action scene during the observation plane race.

The monoplane type of construction, which has been so much to the fore in recent months, was very little apparent at the National Air Races in Spokane. In fact, until Vance Breese arrived with his own monoplane to take third place in Class A of the Pacific coast derby, there was only one monoplane on the ground.

Later, however, there were a Fokker tri-engine plane belonging to the Army; the Fokker Universal which Jack Frye piloted to fourth place in Class A of the Pacific coast derby; two Ryan Broughams, a Hamilton all metal plane, "Duke" Schiller's Stinson monoplane, a Yackey, a Brown and an Imperial.

Biplanes much in evidence were the Laird commercial, Pitcairn Sesquiwing and Mailwing, Waco nine and ten, Eaglerock, both with Whirlwind and OX5 engines; Travel Air, Buhl, International and Swallow. Light planes included the Heath Parasol and Irwin Meteorplane.



Three Army pursuit planes flying wing-tip formation at the National Air Races.

A Stearman biplane used by the Varney air mail lines between Pasco and Salt Lake City and a big Boeing cabin biplane of the type used in carrying the transcontinental mails west of Chicago were on display but not entered in any contests.

Except the Fokker tri-engine, all the Army entries were biplanes, including Curtiss Hawks with D-12 and V-1550 engines, one of the latter having wing radiators; two Curtiss Falcons, one with wing radiators, two Douglas transports, several Douglas observation planes and a de Havilland.

The Navy contingent was provided with Boeing pursuit craft, powered with Packard 1550 engines and several of the new type training planes built by the Consolidated Aircraft Company. The Marines had Hawks powered with Pratt & Whitney Wasps except one, which was powered with a Curtiss D-12.

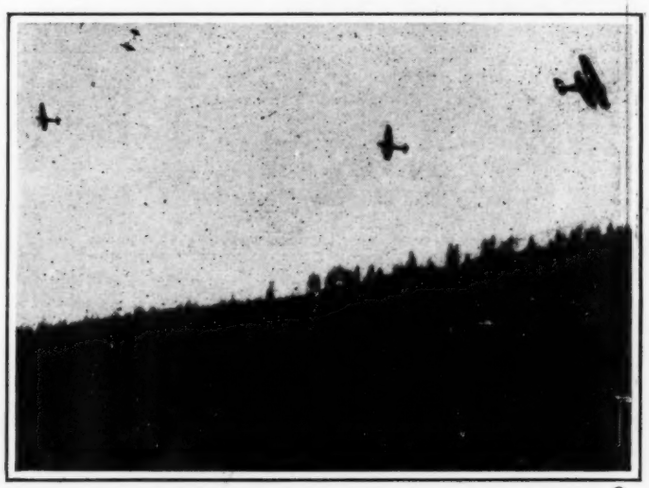
In all, approximately 100 planes were on the field. The line was more than a mile in length.

An aerial circuit of America, for the purpose of laying out a tentative route for the National Air Tour of 1928, was announced by Ray Cooper, Michigan district governor of the National Aeronautic Association and manager of the 1927 and 1928 air tours.

Mr. Cooper planned to start the tour immediately after the races, in a Stinson-Detroiter piloted by Eddie Stinson and placed at his service by the Stinson interests and the Tide Water Oil Co.

He will visit most of the Pacific coast cities which have large airports and will return east by way of San Diego, Phoenix, El Paso, Fort Worth, Tulsa and St. Louis. The tour will include the eastern states from Georgia to New England.

With Cooper will go A. H. Harris western regional engineer for the oil company and J. T. Whitaker, aeronautical engineer for the same concern. Other passengers may be carried from time to time. Stinson will act as pilot and represent the company he heads, the Stinson-Detroit Aircraft Corp.



Pursuit planes coming and going.

The plane to be used is the same which competed in the transcontinental air race. It is a refinement of the craft used by Redfern in his Brazilian flight, by Schlee and Brock in their round-the-world tour and on several of the trans-Atlantic flights.

While on the trip airports will be surveyed with an eye to their use by the 1928 tourists, civic bodies will be consulted and other arrangements made.

R.A.F. Pilot Completes 8000 Mi. Flight

Word was recently received that Flight Lieut. R. Bently, R.A.F., has completed what is claimed to be the longest solo flight on record. In a de Havilland "Moth" with a 30-80 hp. Mark II Cirrus engine Flight Lieutenant Bently completed a flight from London, England, to Capetown, South Africa, a distance of almost 8,000 mi. His route was via France, Italy, Malta, Cairo, Khartum, Kisumu and Buluwayo.

The New England Aviation Exposition

By DANIEL ROCHFORD

Director, New England Aviation Exposition

MORE THAN ninety thousand persons including in their number Assistant Secretary of Commerce for Aeronautics William P. MacCracken, Jr., and Assistant Secretary of the Navy for Aeronautics Edward P. Warner, visited the New England Aviation Exposition held in Mechanics Building, Boston, Mass., Sept. 26-Oct. 1. Ten airplanes, ninety-five model airplanes ranging from the finely finished T. S. Navy models to the flimsy home made amateur contest models of "Lindy's plane", parachutes, airafts, flood lights, anti-aircraft searchlights, a complete aerial photographic laboratory, elaborate model airports, Wright and Pratt and Whitney engines, aerial maps and photographs, and other aviation products filled the exposition hall.

The aviation show was staged in conjunction with the annual Boston Radio Exposition which occupied a separate hall adjoining the air show. No charge was made for booth or floor space to airplane exhibitors. Friday, Sept. 30, the New England Council sponsored an afternoon and evening aviation conference at the Hotel Statler in Boston and made a visit to the air show the feature.

The Navy sent a Ford tri-engined plane to Boston for the show week and four flights were made carrying the honorary members of the aviation show committee over the city afternoons. The UO Vought formerly assigned to Rear Admiral William Moffatt was dismantled and hauled to the exposition hall where it was on display all week.

The Boston Airport Corp. placed the largest aircraft display in the hall, sending over a Stinson-Detroiter cabin biplane and a Travel Air C-6 owned by William Eaton, a former pupil of the school and field manager of the Nantucket Airport this summer. They also showed a home-assembled Heath parasol monoplane built by two Boston amateur airmen and flown with somewhat indifferent success by a half dozen of the mail and commercial pilots at the airport this past month.

The Dennison Aircraft Corp. of Atlantic showed a new Waco 10. The Department of Commerce through special

permission placed a Whirlwind engined Travel Air biplane in the show along with its model airway section and educational exhibit. This plane is being flown by Inspector W. R. Jones. Due to lack of training planes at the Boston Airport neither the Massachusetts National Guard nor the Regular Army could send over new planes. However two JNs were saved out from the Sept. 1 destruction order of the War Department. Capt. Horace N. Heisen, airport commander, had all the fabric stripped from one and the wires blued so that people could see what a plane looks like inside. This "stripped Jenny" was placed alongside a completely covered JN furnished by the Guard and proved a feature of the show.

Lieut. Walter Eade managed the Massachusetts Institute of Technology exhibit. A miniature wind tunnel was shown in operation, parachutes were folded each evening, airplane models and wind tunnel models were on display. Tech also sent over the only seaplane in the show, a Navy submarine experimental type developed four years ago but not put in production.

British Martinsyde Biplane Shown

One of the flashiest planes in the show was the little Travel Air biplane just purchased by the Harvard Flying Club. This plane was flown to Boston by two Harvard pilots, Murray N. Fairbanks and August Pabst, and arrived Tuesday of show week, being at once dismantled and hauled to the hall. Students were on hand explaining the financing scheme of the club to interested representatives of other light plane groups.

The tenth plane was a British Martinsyde biplane with a four place cabin and a Rolls Royce engine. It is the property of Matthew Luce, son of the regent of Harvard College, and an associate William Garrity of Boston. Despite its out of date features it proved a popular drawing card because of such features as the ladder by which one enters the cockpit.

Pratt and Whitney occupied the booth space just before the main entrance. A Wasp and a Hornet were mounted and Representative Gauss of the factory was on hand to answer questions. The Wright company sent the same engine that was on display at Bolling Field this spring, one of Commander Byrd's North Pole engines.

The post office opened an air mail station in the hall and a feature of the opening night was the despatch of the first "aerograms" to President Coolidge and the three members of his "air cabinet". These aerograms are telegraph blanks adapted for air mail use and their chief virtue is the obviating of the usual polite salutation and ending and a shortening of the message to just important words.

The 101st Observation Squadron, Mass. Nat. Guard put its big photographic truck in the show and many people inspected it with its laboratory for making prints and enlargements right on the field. The First Corps of Cadets of Boston displayed a three inch anti-aircraft gun and a big Sperry anti-aircraft searchlight. Another of the searchlights was operated nightly from in front of the exposition hall with kites as targets. This stunt proved quite interesting to the public.

A B.B.T. Corp. Exhibit

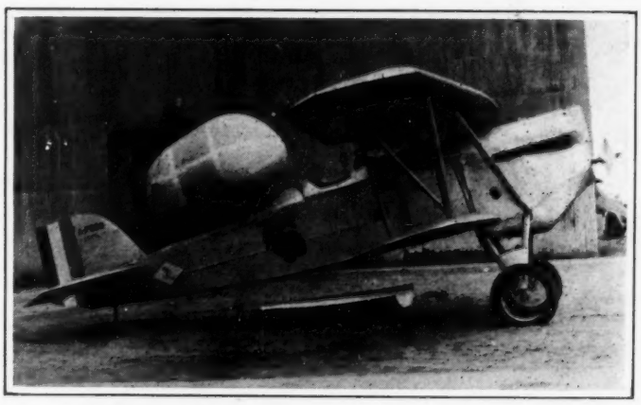
Flown covers, air mail stamps from different nations, an air express office, aviation clothing and equipment displays, booths for aviation schools, an exhibition of "man-lifting kites", a flasher beacon exhibit by the B.B.T. Corporation of America, an elaborate display of Fairchild aerial pictures and maps, and several model airports added to the planes to attract crowds to the hall. A large model of the new Worcester Airport at Grafton, Mass., was displayed by James Whittall of Worcester. It showed the countryside for four miles around the flying field all to scale. Air Service of New England, Inc., of Boston, exhibited a model of the Schenectady Airport belonging to William E. Arthur for whom the company is New England agent. This company also represents Fairchild and displayed his products.

A large scale model airport featured the Boston Chapter N.A.A. booth. It included three hangars, operations offices, beacon towers, thirteen model planes, and various airport accessories and was made by W. Wiggin, a member. Comdr. Richard E. Byrd, honorary commander of the chapter sent a polar bear skin and a half dozen of his instruments for a special booth display.

Many of the exhibitors reported a strong volume of actual business. One company signed up 75 good school prospects. Another sold one plane and booked orders tentatively for another. Several aerial photographic orders were taken and a general stimulation to the aviation industry in New England resulted.

The show more than made up in popular interest and attendance what it lacked in latest model planes. Even the absence of even one monoplane, was unnoticed by the public. The 1925 Boston Air Show had five planes in the same hall. The difficulties of the particular week with most commercial airplane companies tied up at the national air races in Spokane plus the absence of service planes at Boston, made the assembling of ten planes quite a source of satisfaction to the show manager. Practical educational use was made of the show by two aviation classes. Daniel C. Sayre of M.I.T. brought a class in rigging to the show as guests of the management on Tuesday afternoon. Prof. Hilding Carlson who is giving a course in the business of aviation at Boston University night school brought his group to the hall Thursday evening. Miss Thea Rashe, German woman aviatrix, made personal appearances at the show nightly and flew stunt programs over the city two days until a forced landing off the Dennison Airport at Atlantic put her plane temporarily out of commission. Many municipal airport boards were represented at the show and widespread newspaper publicity for individual exhibitors resulted.

Safety First



As a means of saving the lives of airmen forced down on open water the Navy has developed a new device shown above. Attached to the top of the fuselage, behind the pilots seat, is a deflated balloon which can be quickly inflated by the pilot releasing a "bomb" of liquified gas, in the event that he finds it necessary to land in the water. The balloon will float the plane. Photo is of a Marine pursuit plane.

Inflates Rubber Raft During 'Chute Jump

As a means of testing the advisability of including a collapsible rubber raft as standard equipment for airmen flying over water, Corpl. Richard L. Huffman, Marine Corps, inflated a raft while making a 3,000 ft. parachute jump over the Potomac River. When near the water Corporal Huffman dropped the raft and later climbed safely aboard, adjusted the two piece oars, and rowed ashore.

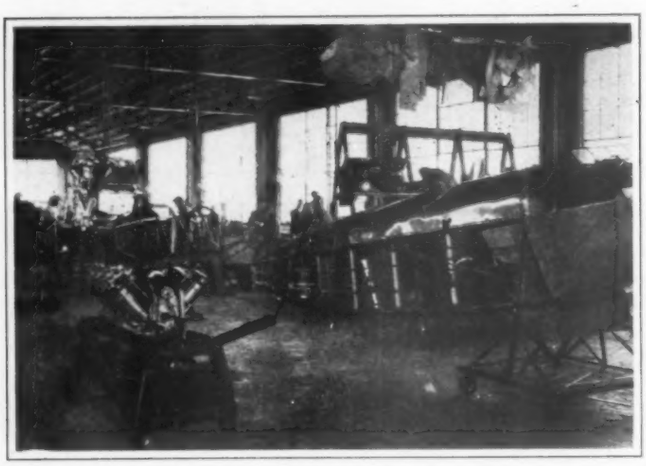
Corporal Huffman, who comes from St. Clairsville, O., jumped from a training plane piloted by Lieut. V. M. Guymon of Salt Lake City. When his parachute opened seventy-five feet lower, he unpacked the raft and inflated it with two tubes of carbon dioxide. He drifted slowly downward until he dived into the river three minutes after the jump. Bobbing up quickly, he swam to retrieve the parachute and fasten it to the raft. He then scrambled onto the rubber seat, and completed the experiment.

Travel Air History

One of the eight Travel Air transport monoplanes now in regular service on the National Air Transport mail route between Chicago and Dallas

ON THE outside wall of a secluded planing mill in an unfrequented part of Wichita, Kan., is a faded sign reading "Travel Air, Inc." Within this building was the beginning of the airplane manufacturing concern bearing that name, as recently as January, 1925. Here, in a space about 30 by 30 ft. rented from the regular occupants of the building, the first Travel Air biplane came into being, an OX5 light commercial plane.

Walter Beech, president and general manager of the company, with several associates, watched their first plane grow out of their ideas. Their working force was but a few men, but they built well; so well, in fact, that this same plane, which was purchased sight unseen by a man who had seen



Engine installation section.

the plans only, is still giving unfaltering service, after many hundreds of hours' flying, with never a moment's faltering in any condition of weather.

Soon came the Ford Reliability Tour of 1925, in which a sister plane to this first plane piloted by Mr. Beech finished first, with a perfect performance. Soon, too, it became apparent that more factory space was needed if an insistent demand for Travel Air planes was to be met. Accordingly, larger quarters were procured, a modern building in West Wichita, containing about six times the space first occupied. It seemed that this would suffice for some time to come, and installations of machinery and equipment and erection of "dope" room were accomplished with such thought in mind.

In spite of the increased facilities, however, which permitted of the construction of fuselages and wings for several planes at a time under the one roof, final assembly had to be accomplished after hauling by truck the separate units to the airport, some six or seven miles across and beyond the city.

A few months passed under these conditions, the force being enlarged rapidly and steadily, both in factory and in office, when again "growing pains" began to manifest themselves. The remedy was found temporarily in the renting of an auxiliary building some blocks away for wing-building operations exclusively. This unit was even larger in area than the main factory and for a time it relieved a painful congestion occasioned by a steady inflow of orders.

Two More Travel Air Winners

Among other factors contributing to this rapidly growing demand were the facts that Walter Beech had again entered a Travel Air and won the Ford Reliability Tour (in 1926) and that a stock model Travel Air biplane had won first in the On-to-sesqui race by making a remarkable flight from California to Philadelphia for the National Air Races about the same time.

By now, purchasers and prospective purchasers had begun to arrive from distant points in the United States, from Alaska and from foreign countries, and many of them flew away proudly in their own Travel Airs, arriving at their destinations, many of them, only to hurriedly write the factory in glowing praise of their new-found experience in smooth flying.

Result—capacity production still failed to provide enough planes, which thus far had been restricted to the biplane type, with power plants either of OX5, Hisso or Wright Whirlwind engine.

About a year ago, sensing the coming need for planes of greater carrying capacity, for transport of mail, express, pas-

sengers and baggage, the engineers began work on a new model, a monoplane. This was built, and tested and it flew. It flew in and around Wichita, giving a new conception of larger capacity aerial navigation with economy in investment and in operating cost. It flew to California, where it did service for a prominent Air Transport. Then it flew to Hawaii, carrying Ernie Smith and Emory Bronte.

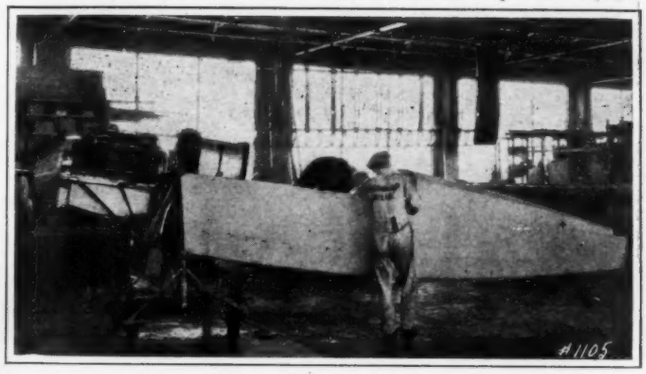
So well did this first Travel Air transport monoplane fly that eight more were purchased on one contract immediately, and these are doing regular service in carrying cargoes of human life and of letters and parcels for the National Air Transport between Chicago and Dallas. It is significant that a duplicate of these planes was the winner of first prize in another flight from San Francisco to Honolulu, with Art Goebel as pilot and Lieut. Davis as navigator.

Early this year it became apparent that more space was again needed. This time, it was decided to erect a building

The dope room in the Travel Air factory.

which would belong to the company and be planned for still greater efficiency, with more space, better light and ventilation, arrangement for line production, and location on the airport. Plans were carefully worked out and the building begun in the spring, being completed early in July of this year.

This Travel Air factory is very businesslike. There are 112 employees who daily labor at routine tasks, growing in skill and efficiency. They have a 50 hr. week. Twenty-five per cent of them are employed in woodworking and wing assembly; 30 per cent are welders and brazers; 20 per cent care for the finishing and upholstering of the planes; there are 10 per cent employed in the assembly of fuselages; 10 per cent in the final assembly; and five per cent in the stock room



A Travel Air plane in the third stage of assembly.

and in janitor service. In addition to these, there is a local sales department, an experimental department, an office department, and plane testing department.

There is, however, but one test pilot, Clarence Clark. Every plane that has been released from the Travel Air factory in the past year has been tested by Mr. Clark or else Walter Beech. Before the time of Mr. Clark, Mr. Beech was responsible for all the testing.

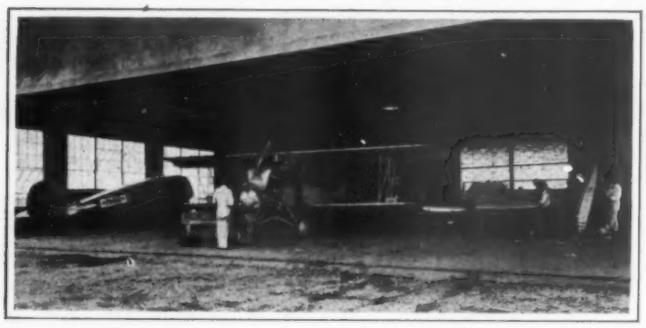
Thirty-five skilled mechanics were brought to the new factory from the old shop. The balance of those in the employ of the company at present were trained as apprentices, and there has been no loss of production or of quality in the airplane in the interim.

The factory system, installed by the Factory Superintendent, R. G. Bennett, is that offering the greatest subdivision of labor, the progressive assembly line, made famous by

A view of the wing assembly department in the Travel Air factory. In the foreground can be seen a workman putting the finishing touches on the spars.

Henry Ford. There is a daily moveup of craft in various stages of construction, which soon gives all the men a knowledge of the amount of work expected from them.

When the factory had settled down to steady production air planes were released with an amazing speed. Using the figures of the past two months as a basis, the four week scale



The final stage in assembling a Travel Air biplane.

of production was found to be 16 OX5 biplanes, two monoplanes, and two J-5 biplanes. In addition to this work, some repairing jobs were done in the factory for visiting airmen.

The home of Art Goebel's "Woolaroc" is an efficient appearing place. Well lighted with latest approved windows for factories, it presents a great contrast to the old shop 80 by 50 ft., formerly occupied by Travel Air in downtown Wichita. The factory has a floor space of 20,600 ft. Its dimensions are 275 by 75 ft. In addition to this working space, there are three mezzanine floors where wire bracing, taping, varnishing and woodtacking are done.

The plant has its own water supply and sewer system. There is a cafeteria on the grounds which serves 40 employees at a time. Internally, the factory has six divisions. The large factory room, occupying about one-half the floor space of the entire factory, is called the fuselage assembly. In this room all metal parts are fitted and welded; controls and motor installed, as well as all of the aluminum work. In the same section of the building are the offices of Mr. Beech; his secretary, Miss Olive Mellor; H. E. Weismiller, chief engineer, and his staff; and O. G. Harned, local sales manager.

There is a double-decked storeroom, bulging with spruce, plywood, and metal parts. The dope and paint room is in the central section of the building, occupying a similar position as the woodwork room. Heavy brick walls which extend above the roof of the building and iron doors make this room a complete fire unit. The eastern end of the building is the final assembly room, in which there is sufficient space for the assembly of several planes, as it occupies the full width of the building.

In cooperation with the engineering department, the factory is continuously conducting experiments for the improvement of airplanes. Structural parts of all planes are tested; stress analyses are continuous, for it is the slogan of the concern that the Travel Air plane is "an engineering job."

Even with this stimulated production, however, the supply is still inadequate, for recently there were orders booked for 488 Travel Airs, or enough to absorb entire output for over 18 months if no more were sold meanwhile.

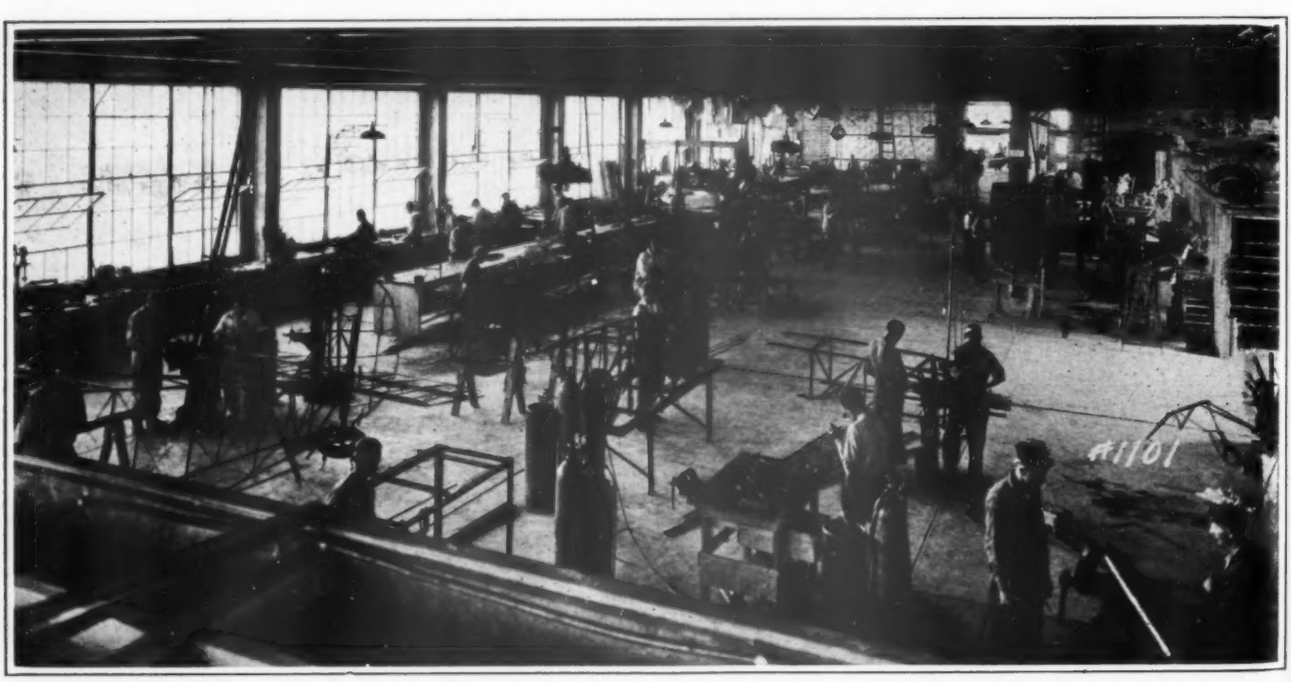
And now comes word that the new building pictured herein is to be duplicated at once. Already construction is under way on another just like it on the Travel Air tract of ground, which should be completed in 60 or 90 days and which will more than double present production, and make of this one of the largest commercial aircraft factories in the world.

Plan Regular English Channel Air Service

On the advice of the American Council at Southampton, England, made public recently by the Department of Commerce the Imperial Airways of England is considering the establishment of a regular air service between Cherbourg and Southampton for ocean travelers arriving at the French port.

Travelers to England via Cherbourg will be able to complete their trip by flying boat on a regular line. There is now in operation a service enabling one to charter a flying boat between the two ports for 45 pounds sterling or about $217.70. This includes a five seater plane with a passenger and baggage capacity of 1,000 lb. for a round trip; one way charges being impractical until a regular service is established.

The plane to be used on the regular service, it is reported, is a large "Medina" flying boat, constructed by S. H. Saunders, Ltd., of Cowes. It is powered with two Bristol Jupiter engines and carries 10 passengers in addition to a pilot and mechanic.



Interior view of the factory room of the Travel Air factory. Construction of planes begins in the space shown in the foreground. By the time the plane reaches the far end of this room it is complete with engine installed.

The New Consolidated Instrument Board

The Consolidated Instrument Company of America, which has been marketing the Jones Tachometer in the aircraft industry for a number of years is now offering a complete board of standard aircraft instruments. The new line will include an airspeed indicator, altimeter, pressure gauge, fuel gauge, magnetic compass, and a tachometer.

The Consolidated Instrument Company will be exclusive sales representative for a number of instrument manufacturers, each of which is a specialist in his particular line. However, no attempt is to be made at this time to develop one organization capable of carrying on the research and production work necessary for the turning out a complete line of aircraft instruments. Production will be left to the individual manufacturer while the marketing will be done by the Consolidated Instrument Co.

Under this arrangement users of aircraft instruments will be able to secure all types from one source. While on the other hand instrument manufacturers will be relieved of marketing expense and the detail attached to the developing of a sales organization, and can better devote full effort to production.

The following are brief descriptions of the six instruments that make up the consolidated board:

The Tag altimeter is designed to eliminate errors due to imperfect elasticity in the diaphram or due to differences in barometric pressure. The Tag altimeter has an actuating cam cut under a vacuum, and individually shaped to fit each separate diaphram, thus compensating for the differences in diaphrams.

This altimeter can also be adjusted for differences in barometric pressure. It has a uniform scale 3½ in. in diameter and is provided with a zero adjustment. The standard range is 20,000 ft. though other ranges are obtainable. The weight of the Tag altimeter is 14 oz.

The type B Jones tachometer is claimed to be the only centrifugal instrument for this purpose, having a uniform scale over the entire dial. The instrument is not affected by changes in temperature or magnetic disturbances. It can be supplied with any of eight standard dials ranging from 100-1,200 r.p.m. to 1,000-10,000 r.p.m. Standard S.A.E. connections are used, eliminating adaptors. The type B Jones tachometer weighs 15 oz.

The "Star Pathfinder" compass was designed primarily for commercial aircraft. It has no loose compensating magnets, and to serve this purpose there is a unit at the bottom that is easily opened and adjusted. The compass, which weighs two pounds, two ounces, is fitted with a lens permitting it to be placed at any angle to the observer, to eliminate local magnetic errors. The compass is obtainable with a luminous dial or electric light attachment.

The air speed indicator, of the pitot static type, was designed in accordance with Army and Navy specifications. The actuating mechanism is of non-corrosive materials and as an extra precaution, a moisture absorbing device is contained within the case. This case is an aluminum die casting, that houses a metal diaphram. The weight is 10 oz. and it has a standard scale of 0-160 m.p.h., though other scales may be supplied when desired.

The type D pressure gauge was specially designed for aircraft use. The instrument, which is guaranteed, is provided with a rustic and dust proof case finished in black and having pipe connections at the rear. Both air and oil pressure gauges weigh six ounces and are provided with scales of 0-6 lb. per sq. in. and 0-120 lb. per sq. in. respectively.

The type UMGB fuel level gauge is designed to be mounted at the top, end or bottom of either wing or fuselage tanks. The dial is easily read and is protected by a black enameled cup with a non-breakable window. A sealed bearing excludes oil and vapor from the dial chamber. The mechanism is positive, large gears being actuated by an oil-proof float.

To Hold Safety in Aviation Meeting

A meeting to discuss "Safety in Aviation" will be held at the Bellevue-Stratford Hotel in Philadelphia, Pa., on Oct. 27 under the auspices of the Engineers Club of Philadelphia with the cooperation of The Aero Club of Pennsylvania and the Philadelphia Section of the American Society of Mechanical Engineers. In the morning there will be a flying exhibition at the Navy Yard Flying Field after which there will be a general get together luncheon at the Engineers Club. Following the afternoon meeting at the Bellevue-Stratford a formal dinner will be served in the Ball Room at 7 o'clock. It will be followed by addresses from prominent speakers including: Hon. William P. MacCracken, Jr., Harry Guggenheim and Comdr. R. E. Byrd.

At the afternoon and evening sessions papers will be presented and discussed by Lt. Jas. H. Doolittle, U. S. A., Comdr. B. G. Leighton, U. S. N., Capt. H. C. Richardson, U. S. N., Lt. Edwin E. Aldrin, U. S. A., Major C. M. Young, Col. Paul Henderson, Mr. J. Brooks Parker, Capt. Emory S. Land, U. S. N.

Credit to Loening

The following is an excerpt from a letter written to AVIATION by Sherman Fairchild, president of Fairchild Aviation Corp.

"In Mr. Archibald Black's article 'Quantity Production of Fairchild Pontoons', the issue of Sept. 5, through an oversight credit was not given to the Loening Aeronautical Corporation for the pioneering work which they have done in the development of composite construction of flying boat hulls. It was largely the result of the very successful use of this type of construction in the Loening Amphibian that it was considered the best type of construction and was adopted in the Fairchild pontoons. Although some might think that all metal pontoons would be best, nevertheless, 'the proof of the pudding is in the eating,' and over a long period of operation in both fresh and salt water, the composite construction has stood up with the minimum of repair in the Loening Amphibian. The Fairchild Airplane Manufacturing Corporation wishes to take this opportunity to thank Mr. Loening for his cooperation in adapting this type of composite construction to pontoons".

Construction of Airship Hangar Completed

The Aircraft Development Corp. of Detroit, Mich., recently completed a large airship hangar at its airport at Grosse Ile, Mich. This hangar is 120 ft. wide, 120 ft. high and 180 ft long. The hangar was constructed with provisions for increasing its length to 400 ft. to house an airship of 1,250,000 cu. ft. capacity. At present the Aircraft Development Corp. is constructing a 200,000 cu. ft. metal clad airship for the Navy.

The hangar is of steel construction with the truss of the arch type. The hangar is on the 115 acres purchased by the corporation, adjoining the southern end of the Grosse Ile Airport. The island is situated at the mouth of the Detroit River with its southern shore facing Lake Erie. About one half of the corporation's property faces the lake giving 7,000 ft. of water frontage.

The Aircraft Development Corp. built the 215 ft. airship mooring tower at the Ford Airport, Dearborn, Mich.

Sells Plane at National Air Race

An airplane sale that was consummated at the close of the National Air Races was effected by Louis Meister who sold the Buhl Airsedan which he flew from the factory at Marysville, Mich., to Spokane, to August Paulsen, a wealthy resident of Spokane. It is understood that the purchase price was $12,000.

The Travel Air Transport Monoplane

Type 5000, Which Has Twice Been Flown Successfully From California to Hawaii, is Powered With a Wright Whirlwind and Carries a Full Load of 3600 Lb. at 123 M.P.H.

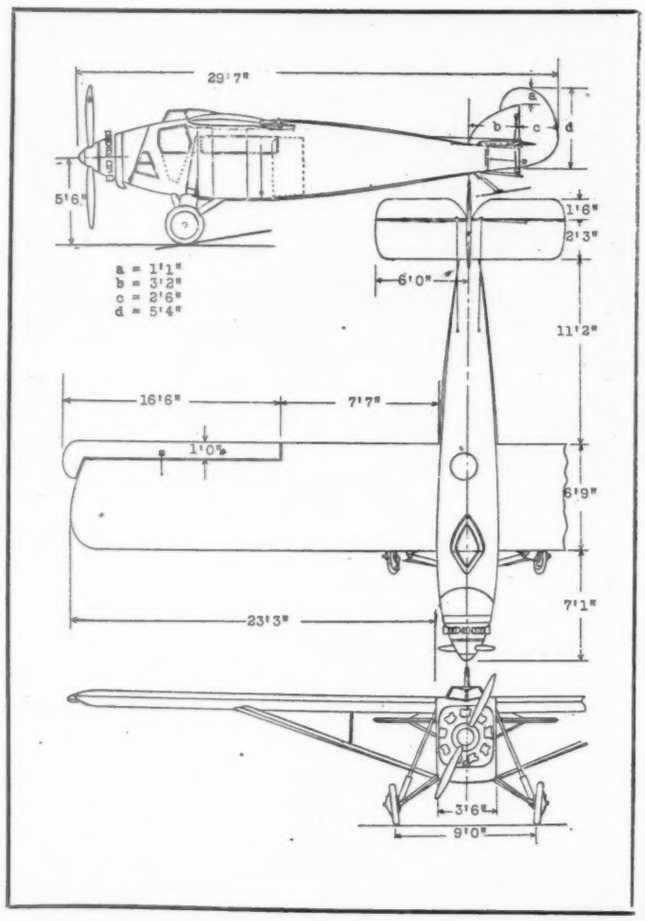
THE TRAVEL AIR closed cabin transport monoplane, Type 5000, now in regular production at the factory of the Travel Air Mfg. Co., Wichita, Kan., is of conventional construction having a welded steel fuselage and a wooden wing which is externally braced. The wing is supported by faired steel tubing and a landing gear is attached to the sides of the fuselage. The plane is powered with a Wright "Whirlwind" engine, and carrying a full load of 3600 lb., Type 5000 attains a high speed of 123 m.p.h.; has a landing speed of 55 m.p.h. and a climb of 750 f.p.m. at sea level. The service ceiling is 13,600 ft. and the absolute ceiling is 15,000 ft. The cruising radius is between 675 mi. and 725 mi.

The pilot sits in line with the leading edge of the wing and his head is covered over by a transparent cupola. A compartment, separated from the pilot's cockpit by a metal partition with a sliding window, is fitted with wicker chairs to accommodate four persons. Lights for night flying are installed on the plane and wheel brakes are standard equipment.

The fuselage of welded steel tubing has no wire bracing except to the rear of the passengers' cabin. At the nose is the Wright Whirlwind engine mounted on a steel tube ring with the supporting frame fastened to the fuselage longerons by four steel bolts. The engine, engine mount, and engine instruments can be removed and replaced in fifteen minutes. After removing the four mounting bolts, disconnecting the gasoline line connections and heater tube, the entire engine unit may be swung off completely. This can be done in approximately the time taken to take on gasoline and oil or unload and load mail. With the power unit removed the rear of the engine is exposed so that it may be worked on without further disassembly. The present operators of these planes keep assembled power units ready at their main and intermediate fields. Thus it is only necessary to have spare engines and minor parts on hand instead of numerous spare planes along the route.

Showing the entrance to the pilot's cockpit in a Travel Air monoplane.

By placing the pilot in an elevated position in front of the wing excellent vision is attained. With the tail skid on the ground the pilot has a line of vision over the engine that strikes the ground at about 75 ft. in front of the plane. In flight forward vision is still better. The pilot has also a wide range downward through door windows at the side, or to the rear over the wing. This excellent vision, both forward and rear is a great aid in night flying where beacons are used. A sight on the line of beacons to the rear is also of great assistance. Through the side windows the pilot can see the wheels when landing.



Three view drawing of the Travel Air transport monoplane, Type 5,000.

The cupola over the pilot's head is placed on the upper surface of the wing and so shaped that air flow tends to suck it off at all times. The cupola is fastened to a Vee frame over the pilot's head and by pulling a ring attached to a pin, there is an opening for the egress of the pilot in case of an emergency. This Vee holds two sliding glass windows that can be opened with little or no draught. During inclement weather this is especially advantageous when the transparent cover would impair the pilot's vision.

The pilot's cockpit, which is quite comfortable, has a very roomy seat cushioned and upholstered, yet adjustable both for height and angle of inclination. Stick and rudder pedal controls are used. The brake controls are above each pedal and can be operated at the same time maintaining rudder control. The brakes can be operated independently.

Standard instruments including altimeter, bank and turn indicator, air speed meter, clock and magnetic compass are mounted on the instrument board. Light switches are also included. The engine instruments and engine controls are on a movable part of the instrument board at the left. The landing lights are normally carried in the wings near the top.

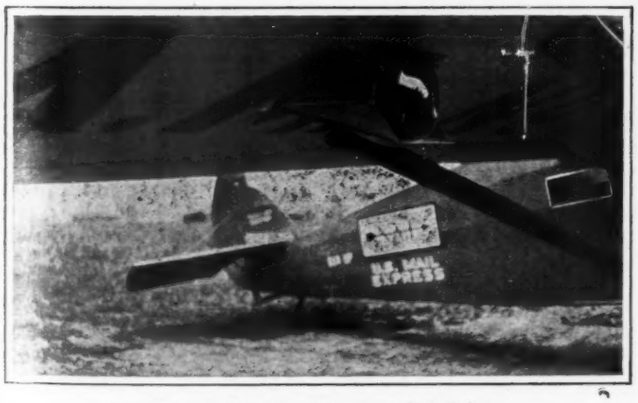
By cables from each light, through the leading edge of the wing, to two levers at the left of the pilot's seat, the lights can be dropped down to the required angle and held rigidly in place. The frames supporting the lights are hinged at their edges and a bracket and shock chord holds the front edge up against the bottom of the wing.

The passengers' compartment is directly behind the pilot's cockpit. At the sides are large windows with a door at the

Smith and Bronte en route to Hawaii in a Travel Air.

rear. The walls are of plywood from the floor to the window sill and above the window is heavy sound-proof velour. At the rear of the cabin near the floor is a storage battery. Near this is a suction tube for the convenience of passengers adversely affected by air travel.

The wings are of wood with box spars and conventional Warren truss ribs. The compression ribs have a solid plywood web, while the drag bracing is completed by double wires from the root to the tip of the wing. Between the spars is, what may be called a compartment, containing the fuel tanks. The top and bottom of this section is of plywood, attached to the ribs and spars so that it can carry the drag loads. The leading edge is of conventional construction being covered with metal on the top and bottom back as far as



The disappearing wing light on a N.A.T. plane.

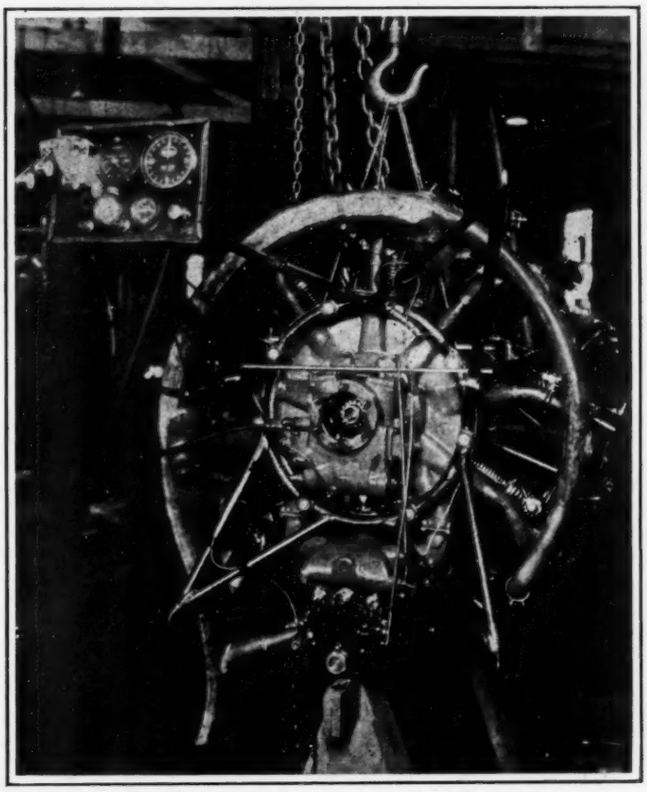
the spar. The wing supporting struts are of steel tubing streamlined with metal sheet covered over with fabric. The rear strut is adjustable for rigging.

The tail structure is conventional having the stabilizer adjustable by a screw mechanism at the rear spar. This mechanism is actuated by a torque tube from the pilot's cockpit.

The landing gear is in two separate units mounted at each side of the fuselage. Each unit is a tripod with two members attached to the lower longeron and the third member, containing a trombone type shock absorber with rubber chord in tension is attached to the upper longeron. A rubber disc absorbs rebound shocks. A beam type tail skid is used with the rubber shock chords attached to the upper end.

The plane is exceptionally well balanced being very stable in flight. It is claimed that recently one of these monoplanes was flown 200 mi. with the stick completely removed from its socket. With a load consisting of a pilot weighing 160 lb., 80 gal. of gasoline, 750 lb. sand ballast and 250 lb. of night flying equipment, the take off was accomplished in 13 sec. followed by a climb of 750 ft. the first minute, and with night flying lamps slowing it down two or three m.p.h. it attained a high speed of 125 m.p.h.

The normal load of the Travel Air cabin monoplane, Type 5000, is pilot and four passengers, with 50 lb. of baggage,



The entire engine unit can be removed and replaced in 15 min.

or pilot and 750 lb. of mail or express matter. Additional specifications follow:

Span	51 ft. 7 in.
Height	8 ft. 9 in.
Length	30 ft. 5 in.
Chord	6 ft. 9 in.
Wing area	312 sq. ft.
Airfoil	M-6
Gross weight, fully loaded	3600 lb.
Weight empty, fully equipped	2160 lb.
Pay load	750 lb.
Useful load (pilot, passengers—or express—fuel and oil)	1440 lb.
Power plant, Wright Whirlwind J-5-C, 230 hp. at 1900 r.p.m.	
High speed, sea level	123 m.p.h.
Cruising speed, sea level, at 1650 r.p.m.	108 m.p.h.
High speed at 10,000 ft.	111 m.p.h.
Landing speed	55 m.p.h.
Rate of climb at sea level	750 f.p.m.
Rate of climb at 10,000 ft.	270 f.p.m.
Service ceiling (climb of 100 f.p.m.)	13,600 ft.

Absolute ceiling ..... 15,600 ft.
Normal cruising range (with 75 gal. fuel) .... 675-725 mi.
Fuel consumption at cruising speed
(1650 r.p.m.) ..... 12 gal. per hr.

To date thirteen of these planes have been constructed and put into operation. The first plane of this type was delivered to the Pacific Air Transport and was in operation for several months before it was fitted out for long distance flying. This plane was flown from Oakland, Calif., to Hawaii by Ernie Smith with Emery B. Bronte as navigator. It was the first commercial airplane to negotiate that Pacific stretch.

The second Travel Air monoplane was purchased by E. K. Campbell who has successfully been operating it from Moline, Ill., to Chicago, Ill., over his passenger route.

After the delivery of Campbell's monoplane construction was started on eight of these planes for use on the National Air Transport, Inc., route between Chicago and Dallas. The last of these was delivered in the latter part of July and these planes are now in regular operation carrying passengers, mail and express daily. The cabin arrangement of these planes makes it easy to replace passenger chairs with compartments to hold mail bags or express packages.

The first Travel Air transport monoplane, built for the National Air Transport, Inc., was constructed when that organization asked for bids and a demonstration of a monoplane capable of carrying a 1,000 lb. load with cargo space of 100 cu. ft. or more and a cruising speed of 105 to 110 m.p.h. powered with a Wright Whirlwind engine. It was stipulated that test flights were to be made 62 days after the receipt of the request. Work was rushed on the drawings and other details and 38 days later the finished monoplane had been test flown and delivered to the National Air Transport. Comparative tests proved to the prospective purchaser the value of this plane and a contract for six was then awarded.

Immediately following completion of the N.A.T. contract two special monoplanes of this type were constructed for entry in the Dole Pacific Flight Contest. The success of "Art" Goebel in piloting the "Woolaroc" to first place in that historic air race proved once again the dependabiilty and exceptional performance of the Travel Air transport monoplane.

Schneider Planes Used Reed Propellers

According to an announcement made by Dr. S. A. Reed, inventor of the famous Curtiss-Reed metal propeller, all of the propellers used in the 1927 Schneider Trophy Contest were Reed duralumin propellers. The defending Italian team were equipped with Curtiss-Reed propellers of the new forged type, manufactured at the Garden City factory of the Curtiss Company. The Societa Italiana Caproni, exclusive licensee in Italy for the Reed propeller, for special and temporary reasons approved Mr. Reed's course in placing the order with the Curtiss Company, the propellers being made to Mr. Reed's designs. One of the reasons for this step was the remarkable performance obtained from the Curtiss-Reed propellers used by the winning Italian team in the 1926 race.

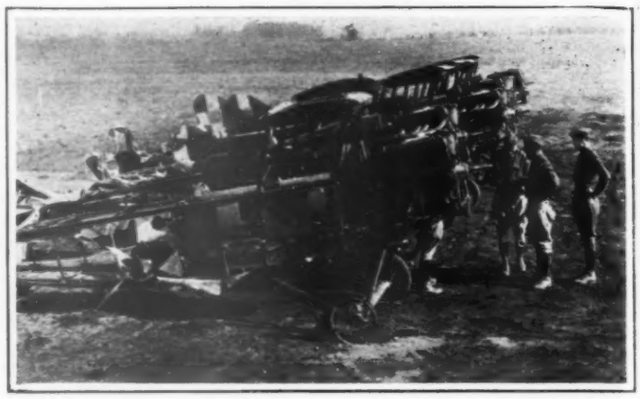
The English Supermarine-Napier and Gloster-Napier entries were equipped with Fairey-Reed propellers of the twisted type, manufactured by the Fairey Aviation Company, Ltd.

Curtiss-Reed propellers have been used by the winners of the last three Schneider Trophy Contests. The selection this year of this American product by both the European countries participating in the race, is an obvious tribute to the world-wide reputation of Reed propellers.

Wright Whirlwind Orders Doubled

Orders for Wright Whirlwind engines so far this year have doubled the expectation figures established by other years. It was announced that in consequence the corporation proposes to expend $1,000,000 for the purchase of the plant it now occupies in Paterson, N. J., which has been rented heretofore. The plant now covers five acres and the building contains 90,000 sq. ft. of floor space estimated large enough to handle a volume of business in excess of $3,000,000 a year.

The Last Parade



Six "Jennies" take the long road at Los Angeles, Calif., after years of service as instruction ships for beginners. Photo shows the planes receiving a final inspection before being destroyed.

Cook's First Air Tour Proves Big Success

J. I. Young, general manager of Thos. Cook & Son, reports that the first aerial tour conducted by that company was a great success. This tour went from New York to Chicago by airplane, carrying a party of fight fans to the Dempsey-Tunney contest.

The party consisted of four passengers and a conductor. The names are: Fred A. Mathey, David Schneiderman, Edison B. Middlekauf and Jack Powelson. George White, manager of Cook's Aviation Department, accompanied this first tour as a conductor.

Following the plan of all Cook's conducted tours, the price of the trip, $575, included airplane transportation to and from Chicago, hotel accommodation in Chicago at the Stevens Hotel, a $40 ringside seat at the fight, and lunches in the air while en route. For this first air tour, the lunches were provided by the Louis Sherry Restaurant of New York. Mr. Voight, manager of Sherry's, prepared a special aviation menu.

These flying tourists entertained themselves while in the air by playing cards, dominoes and checkers. A light portable radio set was also provided, with headphones on which the various stations could be picked up as the plane crossed the country. The party took off from Curtiss Field, New York, at 8 A.M. Sept. 21 and returned to New York about 7 P.M. Sept. 23. The passengers expressed themselves as being delighted with all the arrangements.

The plane used for the Chicago flight was a Fokker monoplane with a Wright Whirlwind engine and enclosed cabin. This plane was chosen out of some fifteen or twenty which were offered, on account of its unusually large wing-spread and the dependability of its engine, the object being to use planes which are slow and safe rather than the racing type of plane which are more prone to meet with accident. However the return trip was made in unusually fast time. With a half hour stop over at Cleveland the total time from Chicago to Hadley Field was 7 hr. 20 min.

This initial air tour will shortly be followed by a series of air tours to different parts of the country. A booklet describing these flying tours will soon be ready for distribution. There have been a great many inquiries for aerial tours to and from Florida for the coming winter.

N.A.C.A. Tests on Airship Models

The National Advisory Committee for Aeronautics recently published Technical Note No. 264 entitled "Tests of the N. P. L. Airship Models in the Variable Density Wind Tunnel" by George J. Higgings. The tests were on two airship models through a range of Reynolds Numbers from 110,000 to 5,000,000. Copies of this report may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.

Amsterdam to Batavia and Return

Mr. Van Lear Black, publisher of the Baltimore *Sun*, recently completed a 19,184 mi. trip by air from Amsterdam to Batavia and return in 183 hr. 27 min. flying time at an average speed of 105 m.p.h. The plane was a Fokker F VIIA type fitted with a Jupiter Series IV engine. Before the long distance flight the plane was in regular operation on the K.L.M. air lines.

The trip to Batavia took 16 days, 3 of which were spent on the ground. The actual flight occupied 86 hr. 27 min. and was completed in 13 flying days, with an average flying speed of 105½ m.p.h. On the return trip the flight was held up for days at a time due to weather and the journey completed in 97 hr. flying time over a distance of 9,592 mi.

HOMEWARD FLIGHT

	Date	*Actual Flying Time*	*Distance*
Batavia-Medan	July 6	9.05	932 mi.
Medan-Singor	" 7	4.30	429 "
Singor-Bankok	" 8	5.0	536 "
Bankok-Rangoon	" 10	5.45	490 "
Rangoon-Calcutta	" 11	7.55	840 "
Calcutta-Allahabad	" 12	4.0	478 "
Allahabad-Karachi	" 13	8.35	*1054 "
Karachi-Bunder Abbas	" 14	8.10	733 "
Bunder Abbas-Bunder Dilam	" 15	8.35	*733 "
Bunder Dilam-Basra	" 16	20.	126 "
Basra-Baghdad	" 20	3.60	329 "
Baghdad-Aleppo	" 20	5.10	496 "
Aleppo-Cnstantinople	" 21	7.0	666 "
Constantinople-Budapest	" 22	8.50	913 "
Budapest-Nuremberg	" 22	4.15	459 "
Nuremberg-Amsterdam	" 23	4.20	378 "
Total	14 days	97 hr.	9592 "

*Circuitously.

It is interesting to compare this trip with the flight undertaken over the same route by Mr. van der Hoop in 1924 with a Fokker F.VII when 127¼ hr. were required and 22 days were occupied. The American World fliers in 1924 flew in the opposite direction and their journey from Bankok to Budapest only occupied as great a time as that taken by the K.L.M. Jupiter machine to cover the complete distance.

Bids for de Havilland Planes Opened

Sealed proposals, opened at the Post Office Department recently for the disposal of the nine remaining De Havilland airplanes in possession of the Post Office Department, disclosed nineteen bidders, scattered throughout the country. The bids ranged from $100 to $2,600. Since each bid was accompanied by a check covering the amount of the bid, the planes will go to the highest bidders.

While the majority of offers came from individual bidders, some of the larger companies, including the Boeing Air Transport, Inc., holders of the air mail contract between Chicago and San Francisco; the Pacific Air Transport, contractor on the Seattle-Los Angeles route, and the Robertson Aircraft Corporation, contractor of the Chicago-St. Louis route, and the original employers of Charles A. Lindbergh, competed. Among the individual bidders was Shirley J. Short, former air mail pilot, and holder of the Harmon trophy for 1926, now flying for the National Air Transport, Inc.

Seattle-Los Angeles Schedule Announced

The Post Office Department recently announced a revision of the flying schedule on the air mail route between Seattle and Los Angeles. It is said that the new schedule will permit more conformity with the actual flying capacity of the planes instead of "speeding up" to make certain mail connections.

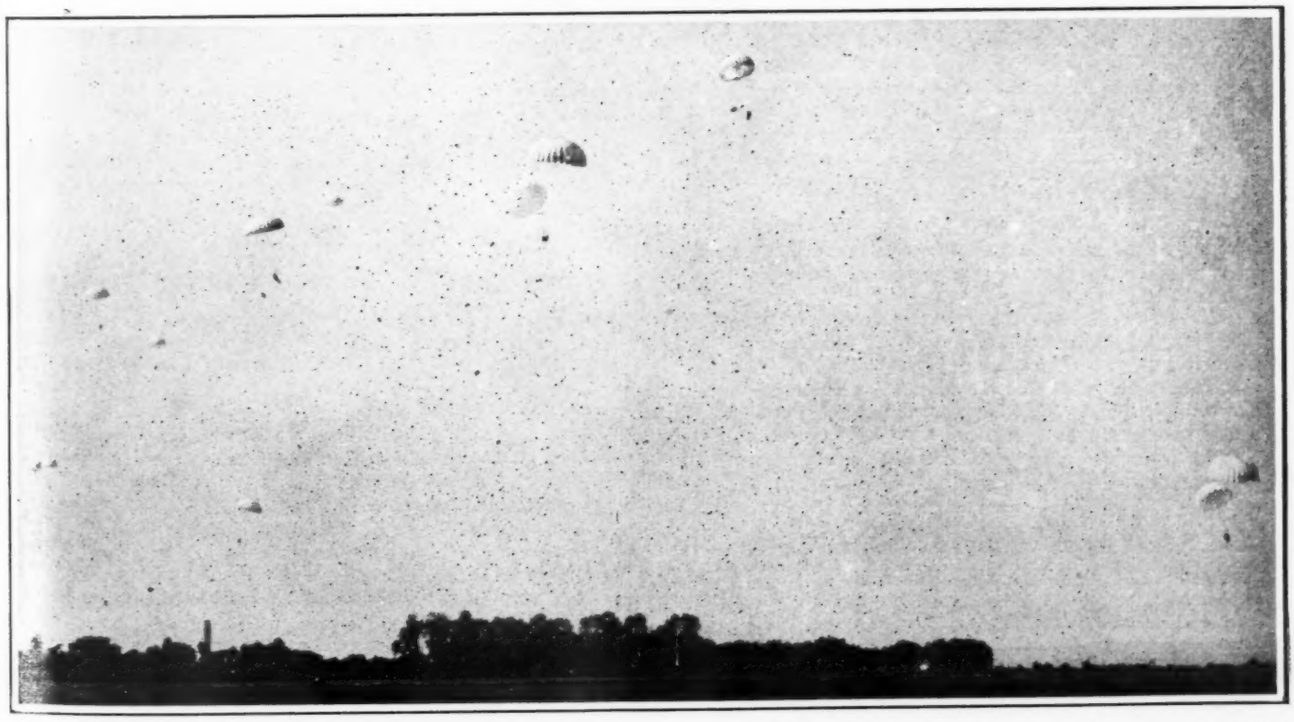
The new schedule according to reports is as follows:

*Leave Seattle, 11:45 P.M.; *leave Tacoma, 1:30 A.M.; leave Portland (Vancouver), 7 A.M.; leave Medford, 9:30 A.M.; leave San Francisco, 1:15 P.M.; leave Fresno, 3:15 P.M.; leave Bakersfield, 4:45 P.M.

Leave Los Angeles, 12:01 A.M.; leave Bakersfield, 1:30 A.M.; leave Fresno, 3 A.M.; leave San Francisco, 5 A.M.; leave Medford, 9 A.M.; leave Portland (Vancouver), 11:30 A.M.; leave Tacoma, 1:30 P.M.; arrive Seattle, 2 P.M. Daily except Monday.

*Dispatch is by train to Vancouver Field.

Look Out Below



A world's record for parachute jumping was established at the Anacostia Naval Air Station recently when nine men of the Navy and Marine Corps leaped into space in the elapsed time of 18 seconds from a Ford transport plane owned by the Navy. The previous record was set by six simultaneous jumps in Germany. The demonstration was not undertaken so much with a view of breaking a record as to determine whether airplane passengers can resort to the parachute in time of emergency. The jumpers dropped through the cabin door of the plane at two-second intervals, each falling about fifty feet before his silk parachute unfolded.

Guggenheim Authorizes Equipment Loan

An equipment loan to finance the purchase of three multi-motored, modern passenger carrying airplanes to be operated on a model passenger airway between Los Angeles and San Francisco by the Western Air Express has been authorized by the trustees of the Daniel Guggenheim Fund for the Promotion of Aeronautics. It is the intention of the Western Air Express to establish regular service on this air line early next year on a three hour daylight schedule over a route, which in accordance with the Fund's policy, must be approved for passenger transport by the Aeronautics Division of the Department of Commerce.

This is the first equipment loan to be made by the trustees in accordance with the recently adopted policy of the Fund to authorize such loans for the purpose of encouraging the development of passenger carrying air lines.

Equipment loans are and have been used extensively in the development of American railroads and street railways and the trustees of the Fund in their plans to assist passenger carrying air lines have adopted the same principles of financing as have been found successful in railroad equipment purchases.

Trustees of the Fund believe that the equipment loan plan will not only provide equipment for the demonstration of performance but will also provide a concrete example of aeronautical financing upon which further financing can be developed. The purpose of the loan is to finance the purchase of modern multi-motored planes of maximum safety and comfort.

The trustees desire to state in connection with the equipment loan that the Daniel Guggenheim Fund has no commercial or other interest in Western Air Express and is related to that company only in the capacity of financing the purchase of the equipment to be used on the selected route.

Optical Company Uses Air Express

Bausch & Lomb Optical Co., of Rochester, N. Y., has the distinction of being the first shipper of air express in Rochester. A package of specially made products was recently sent by the American Railway Express Co., air express service, to San Francisco, Cal., as the first such shipment to be received at the local office of the company for dispatch by this route.

An interesting angle of the shipment was the fact that it was so timed as to consume only one business day in transit. The shipment was sent out of the Bausch & Lomb plant just before noon on a Saturday and scheduled for delivery in San Francisco the following Monday afternoon at 4:30. The schedule was kept according to a wire received from San Francisco.

Matthew Meisenzahl, chief shipping clerk of the company who routed the shipment said that this fact will do away with many delays incidental to week-end rush orders over a long distance.

"In many cases," stated Mr. Meisenzahl, "such orders arrive late Saturday morning and we are not able to prepare them for shipment until about noon. Our mail clerk leaves for the postoffice before noon and if we miss him shipments must wait over until Monday. However the pick-up service incidental to air express gives us a chance to get the package in the truck shortly after noon and as we are not open Saturday afternoon only a day is lost in business."

N.A.C.A. Technical Note No. 265

A technical note describing the method of measuring the moment of inertia of full scale airplanes as practiced by the National Advisory Committee for Aeronautics has been prepared by M. W. Green. The method, while not new, is published for the information and guidance of those who may desire to make similar measurements. The paper contains as an appendix the computations for the moments of inertia for the 0-2 airplane. Technical Note No. 265 entitled "Measurement of Moments of Inertia of Full Scale Airplanes" may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.

Austin Co. Completes Modern Hangar

A modern hangar has just been completed at the Cleveland Airport for the Thompson Aeronautical Corp., a subsidiary of the Thompson Products Co., Cleveland, O., by the Austin Co., of that same city.

The new hangar is 70 x 100 ft. and has a clear span. The floor is of concrete, well drained, with a concrete apron extending out in front of the hangar for a distance of 40 ft. The clearance under the steel trusses will permit the accommodation of planes higher than any of those in use today. The interior of the hangar is well lighted, due to the use of continuous steel sash around three sides of the building.

The doors of the hangar, which roll on tracks, are so easily operated that a large section can be shifted with the application of but a few pounds pressure. Each section of door has three panels with a light of glass in the middle section to eliminate all shadows within the hangar on even the darkest days.

Office Adjoins Hangar

The office and stores department adjoins the hangar on one side and is of one story brick and steel construction, 15 ft. wide by 50 ft. long. In it are housed the ticket office and administration quarters of the Thompson Aeronautical Corp. A well arranged store and stock room occupies the rear section.

The Thompson hangar was designed, built and equipped by The Austin Co., of Cleveland, O., well known designers and builders of aircraft and dirigible hangars, aircraft factories, wind tunnels and every type of structure required for the aviation industry. While the contract called for delivery in thirty working days, the hangar was actually completed in ten days after the structural steel arrived at the site. This is perhaps the most remarkable record of speed in construction ever witnessed in peace time in the aviation industry. Twenty tons of steel were used in the hangar.

The Thompson Aeronautical Corp. has been doing a rush business ever since it purchased its first two planes about the first of August; one a Swallow three place machine and the second a Laird three place machine, the latter powered with a Wright Whirlwind engine. Airdrome flights, contract work, flying instruction; in fact, a complete service is offered by this company. On Sept. 1 an additional plane was purchased; an American Eagle Rock. Capt. "Tex" Marshall, general manager of the company, has experienced great difficulty in purchasing enough planes for immediate delivery. He states that while nearly 8,000 people have been carried in the short period of operation, thousands of aviation enthusiasts have been unable to fly because of the long wait, due to the large waiting list that prevails.

Goodyear Air Yacht Again in Operation

The Goodyear air yacht "Pilgrim", the world's smallest airship, is again being operated by the Goodyear Tire & Rubber Co. from the Wingfoot Air Station near Akron, O., following the procurement of a helium supply from the U. S. Government.

The tiny airship was flown to Ford Airport at Dearborn, Mich., at the time of the recent International Balloon Race and featured the race program preceding the take off of the competing balloons.

On the day preceding the International Race, the airship, piloted by C. K. Wollam, was taken to the Tam O'Shanter Country Club where a number of demonstration flights were made with prominent Detroit citizens as passengers.

The Pilgrim is 110 ft. long, 30 ft. in dia., has a gas capacity of 53,000 cu. ft. and is powered with a three-cylinder Wright radial engine.

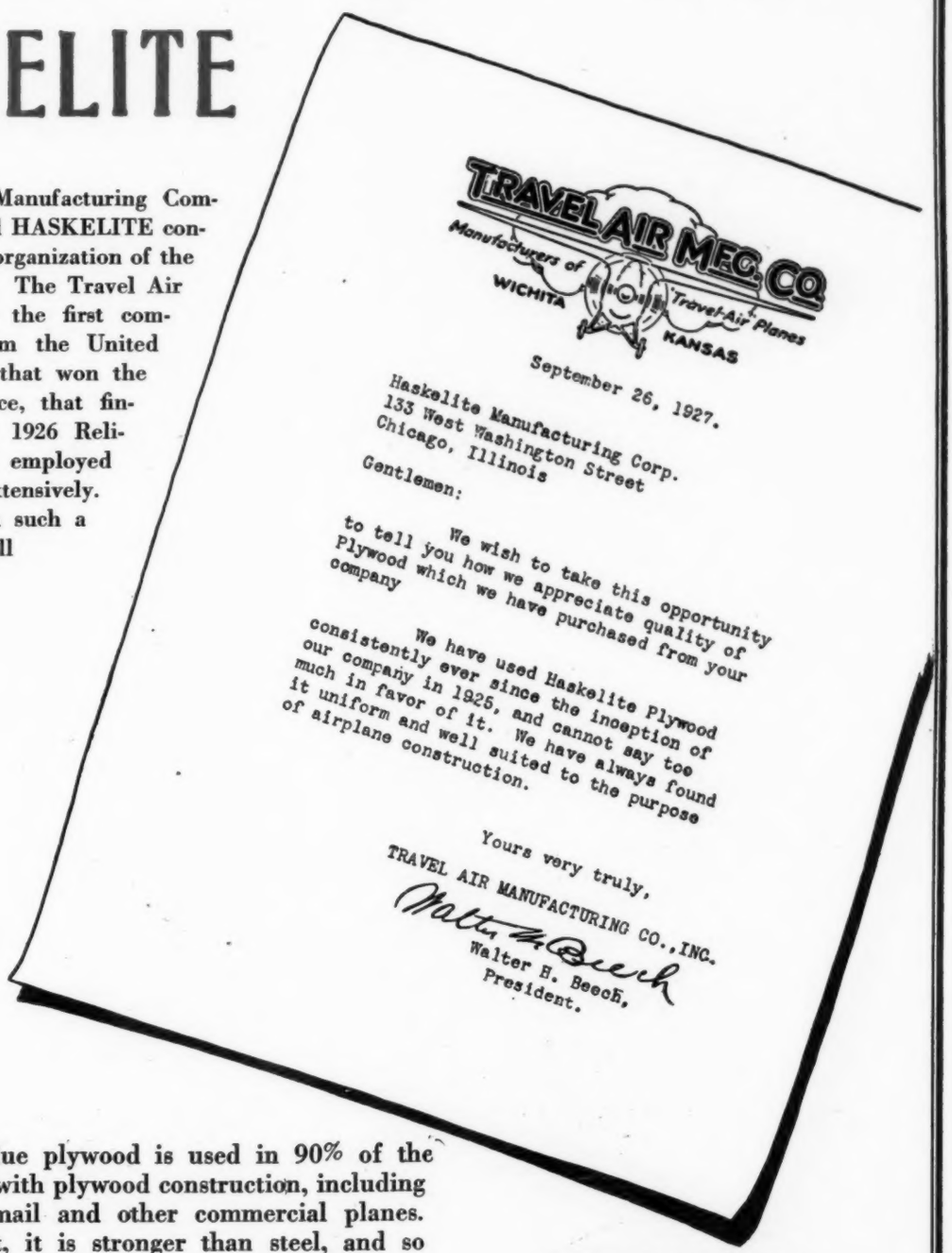
The car is entirely enclosed, finished in polished nickel and aluminum, and has the interior appearance of a high-priced automobile sedan.

A portable mooring mast of light weight tubular construction accompanies the ship on trips away from the Akron hangar and may be erected in less than an hour's time.

Ever since Travel Air began—

HASKELITE

The Travel Air Manufacturing Company, Inc. has used HASKELITE consistently since the organization of the company in 1925. The Travel Air planes that made the first commercial flight from the United States to Hawaii, that won the Dole Honolulu race, that finished first in the 1926 Reliability Tour, all employed HASKELITE extensively. To have a part in such a record is no small accomplishment.



TRAVEL AIR MFG. CO.
Manufacturers of Travel-Air Planes
WICHITA KANSAS

September 26, 1927.

Haskelite Manufacturing Corp.
133 West Washington Street
Chicago, Illinois

Gentlemen:

We wish to take this opportunity to tell you how we appreciate quality of Plywood which we have purchased from your company

We have used Haskelite Plywood consistently ever since the inception of our company in 1925, and cannot say too much in favor of it. We have always found it uniform and well suited to the purpose of airplane construction.

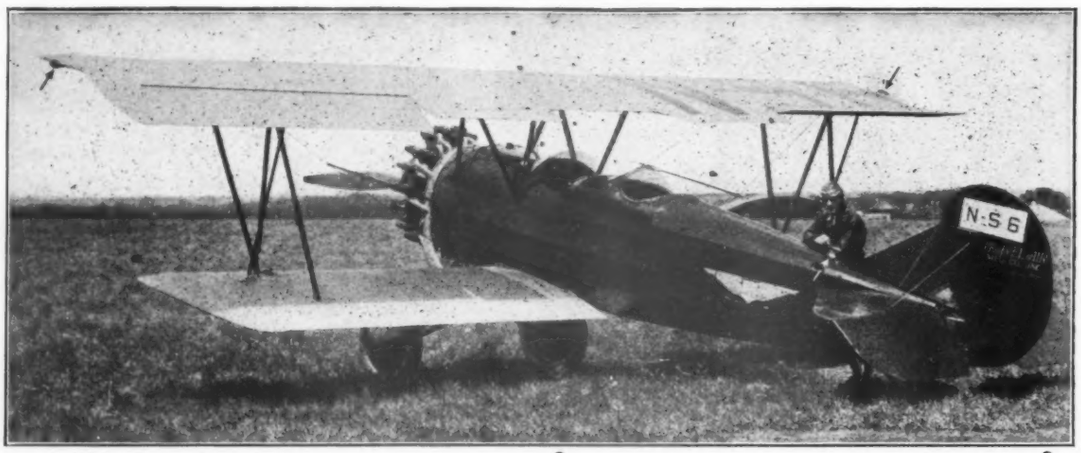
Yours very truly,
TRAVEL AIR MANUFACTURING CO., INC.
Walter H. Beech,
President.

THIS blood-glue plywood is used in 90% of the American aircraft with plywood construction, including Army, Navy, air-mail and other commercial planes. Weight for weight, it is stronger than steel, and so absolutely waterproof that panels have been boiled in water without separating the plies. It can be shaped to compound curvature with no loss in strength. Write for a list of applications and representative users.

PLYWOOD
HASKELITE
PLYMETL

Haskelite Manufacturing Corporation

133 West Washington Street CHICAGO



NAVIGATION LIGHTS

The Air Commerce Regulations require the use of Navigation Lights, as follows:

*SEC. 85. LIGHTS.

(*A*) *Angular limits.*—The angular limits laid down in these rules will be determined as when the aircraft is in a normal flying position.

(*B*) *Airplane lights.*—Between one-half hour after sunset and one-half hour before sunrise airplanes in flight must show the following lights:

1. On right side a green light and on left side a red light, showing unbroken light between two vertical planes whose dihedral angle is 110° when measured to the right and left, respectively, from dead ahead and to be visible at least 2 miles.

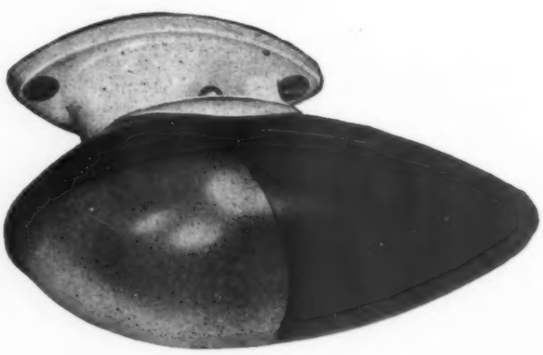
2. At the rear and as far aft as possible a white light shining rearward, visible in a dihedral angle of 140° bisected by a vertical plane through the line of flight and visible at least 3 miles.

The Pioneer Navigation Light, of which an illustration appears below, fulfills these requirements. Side lights are designed for mounting on vertical surfaces and tail lights for mounting on a horizontal surface. When so mounted the shielding permits the lights to be seen only through the specified angles.

These lights are very substantially made, and are easy to install. The base is of cast aluminum alloy. The shell of red, green, or clear celluloid, according to the position in which the light is to be mounted, is readily removable for replacement of bulbs. These lamps use standard automobile headlight bulbs, 12 volt, 21 candle power, double contact.

Navigation lights are carried in stock for immediate delivery at Los Angeles and San Francisco, as well as at the factory in Brooklyn.

The Travel Air Biplane of the Department of Commerce, illustrated above, shows a splendid installation of Navigation Lights. All Travel Airs are fitted and wired for Pioneer Navigation Lights—ready to be equipped for night flying by simply screwing the lights in place and connecting the wires to them.



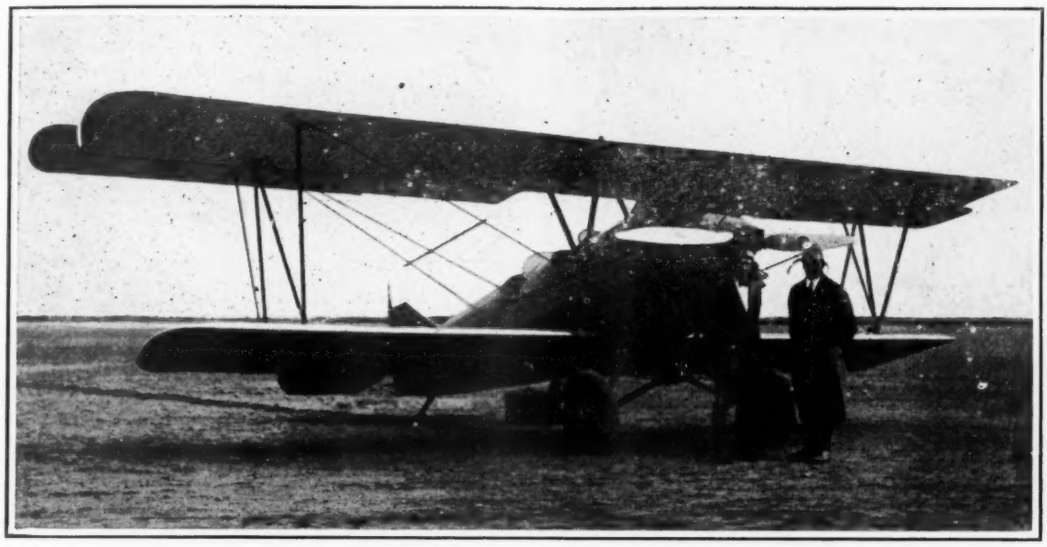
The price of Pioneer Navigation Lights per set of three, complete with bulbs, is $15.00, f.o.b. Brooklyn, N. Y.

Pioneer Instrument Co.
754 Lexington Avenue
Brooklyn, N. Y.

15 Spear Street ***San Francisco***

639 So. San Pedro ***Los Angeles***

TRAVEL AIR
FOR AIR TRAVEL



The Travel Air *is equipped with* Standard Steel Propellers

STANDARD STEEL Adjustable Pitch Propellers have played an important part in the recent triumphs of the Travel Air. Lieutenant Goebel's Woolaroc, which won the Dole Derby to Hawaii and H. C. Lippiatt's biplane (photo of plane, pilot and passenger above) which won the Pacific Coast class A Derby are both equipped with Standard Steel Propellers. The eight monoplanes recently delivered to the National Air Transport Company by the Travel Air Manufacturing Company are all equipped with these propellers.

Standard Steel Propellers insure resistance to climatic changes and are designed to give maximum performance under the most varied flying conditions.

STANDARD PITTSBURGH PENNSYLVANIA STEEL PROPELLER CO.

STANDARD STEEL PROPELLER COMPANY

General Offices & Works

221 SEVENTH AVENUE WEST HOMESTEAD, PA.

CONSOLIDATED

INSTRUMENT COMPANY OF AMERICA, INC.

Announces

A COMPLETE NEW LINE *of* AIRCRAFT INSTRUMENTS

DESIGNED ESPECIALLY FOR MODERN COMMERCIAL AIRCRAFT

STAR PATHFINDER COMPASS

The Star Pathfinder Compass represents the latest development in aircraft compasses. It embodies many advanced features including a built-in compensating unit, eliminating the use of troublesome loose magnets, also a spherical magnifying cover lens permitting the use of a small dial and yet affording great visibility.

The Star Pathfinder is the most compact, accurate and practical compass yet constructed.

TAG ALTIMETER

The Tag Altimeter has been designed along the lines suggested in the official reports of the U. S. Bureau of Standards and the National Advisory Committee for Aeronautics. One of the most valuable features is the actuating cam which is cut in a vacuum and its contour individually shaped to fit each separate diaphragm. Thus, any imperfections or differences in diaphragms are compensated for and precision results obtained. Another feature is the "Barometer Setting" scale which allows a pilot to compensate for differences in barometric pressures. The Altimeter may also be used as a barometer when desired.

AIR SPEED INDICATOR

This instrument conforms with the latest requirements of both the U. S. Navy and Army Air Corps. The case is a special aluminum die casting and exceptionally light. The actuating mechanism is made of non-corrosive material throughout. A moisture absorbing device is placed within the case affording a double insurance against corrosion. Furnished complete with new type Pitot Static tube.

JONES TACHOMETER

The Jones Tachometer is so well known throughout the industry that it is hardly necessary to mention any details. It includes a perfectly uniform scale covering the entire dial which affords greater length and openness than in other instrument on the market. All connections are S.A.E. standard, and the instrument can be calibrated to operate at either cam shaft or crank shaft speed.

MAGNETIC GASOLINE GAUGE

This instrument is designed to operate in an inverted position from wing tanks or in an upright position from fuselage tanks. The dial is the drum type, having large easily read figures, which is protected by a black enamel cap with a non-breakable window.

OIL PRESSURE GAUGE

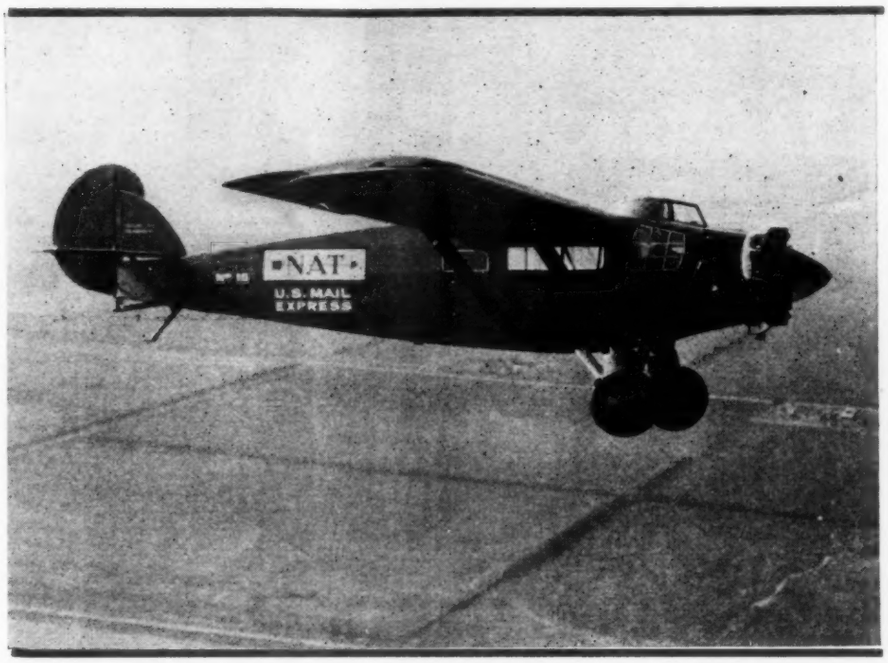
The Type D Gauge is especially suited to aircraft purposes due to its exceptionally rugged construction. The case is finished in black and is moisture and dust proof. The mechanism is non-corrosive, and the complete instrument is guaranteed for accuracy, workmanship and material.

Travel Air Has Used Jones Tachometers From The Beginning

Consolidated Instrument Company of America, Inc.

NEW YORK

Contractors to the U. S. Army, Navy and Coast Guard



One of the new Whirlwind engined Travel Air planes recently delivered to the National Air Transport Co.

DARTMOUTH-TEX

TRAVEL AIR and DARTMOUTH-TEX

THE RECENT Pacific flights of Smith and Bronte and Lieutenants Goebel and Davis and the splendid victory of the Travel Air biplane in the Pacific Coast Air Derby have established beyond any doubt, the degree of perfection that the builders have attained in the Travel Air. The fact that the National Air Transport Company has recognised in the Travel Air, the plane best suited to the exacting test of a daily mail route and have ordered eight planes for their regular run between Chicago and Dallas is a wonderful tribute to the splendid qualities of the ship.

No small part of the success of a plane is due to a careful choice of materials and a minute attention to detail. It is but natural, that with this realization in mind, the designers of the Travel Air, in their search for a reliable aero-cloth, have turned to *Dartmouth-Tex*.

Dartmouth-Tex aero-cloth was used on the fuselage and tail surfaces of both Commander Byrd's plane and that of Maitland and Hegenberger. The famous Bellanca monoplane is also covered with this cloth. In each case it has faultlessly served its purpose and conclusively shown why it has been the leading Grade A aero-cloth in America since the early days of the industry.

Sole Distributor

W. HARRIS THURSTON

THURSTON CUTTING CORPORATION
116-118 FRANKLIN STREET
NEW YORK CITY

THE LEADING GRADE "A" AERO-CLOTH IN AMERICA

Travel Air

Below—The Travel Air Transport sister ship to Art Goebel's "Woolaroc" which won first prize in the Dole Derby San Francisco to Honolulu

TRAVEL AIR MFG. CO., INC.

Three years ago—unknown
Today — an eminent name in aviation circles

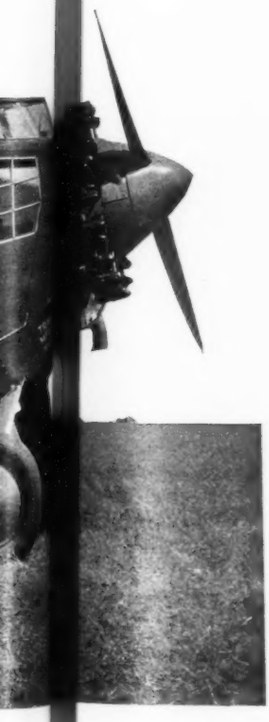
THERE IS NO ACCIDENT about Travel Air's high position among commercial aircraft. Never was there more serious or solemn purpose than that of Travel Air builders to dominate their field by sheer merit of each finished airplane.

And the reward has not been lacking. Steady increase of business; expanding factory and organization; comfortable profits, despite lowered selling prices. All these have come within less than three years.

But the greatest reward is not in these. It is in the rapturous expressions of pilots when they first fly Travel Airs and learn of their performance and their sureness of handling. It is in the bond of friendship between producer and purchaser which develops more and more firmly as the flying hours mount up into the many hundreds.

These are our greatest reward, and our inspiration.

Catalog on request



Factory and General Office, WICHITA, KANS.

Every Travel Air Plane carries a Mobiloil recommendation

CABLEGRAM

FU511 RCA F WHEELER FIELD VIA HONOLULU 19

1927 AUG 17 PM 7 01

VACUUM OIL COMPANY
NEW YORK

USED YOUR GARGOYLE MOBILOIL ON FLIGHT TO HAWAII EVERY SATISFACTION ENGINE FUNCTIONED PERFECTLY

ART GOEBEL

WINNERS OF THE DOLE RACE

Left to right: Lieut. W. V. Davis, U.S.N., navigator; "Art" Goebel, pilot; Walter Beech, president of the Travel Air Manufacturing Co., builders of the "Woolaroc."

When "Art" Goebel, winner of the Dole Flight, flashed this message across the Pacific he justified the judgment of the builders of his Travel Air cabin monoplane.

They had specified that every plane coming out of the Travel Air factory should carry a Mobiloil recommendation plate on its instrument board.

The Travel Air Manufacturing Company began hanging up records several years ago. Walter Beech, president of the company, was one of the competing pilots in the Ford Reliability Tours of 1925 and 1926. He won both events in succession — using Mobiloil!

Mobiloil has twice spanned the Pacific by air — first with the U. S. Army fliers and now with Goebel and Davis. And before that it had proved its worth on many flights such as Lindbergh's from New York to Paris, Commander Byrd's to the North Pole and the U. S. Army fliers in their trip around the world.

You will find Mobiloil *everywhere.*

GARGOYLE

Mobiloil

VACUUM OIL COMPANY MAIN BRANCHES: *New York, Chicago, Philadelphia, Boston, Buffalo, Detroit, Pittsburgh, Minneapolis, St. Louis, Kansas City, Dallas*

Other branches and distributing warehouses throughout the country

Standard Aircraft Finishes

Clear Nitrate Dopes
Pigmented Color Dopes
Craft Lacquer Enamels in All Colors
Clear Top Coat Lacquer
Metal Primer

Our Products Used on Winning Aircraft

All products offered are manufactured by us.

Van Schaack Bros. Chemical Works

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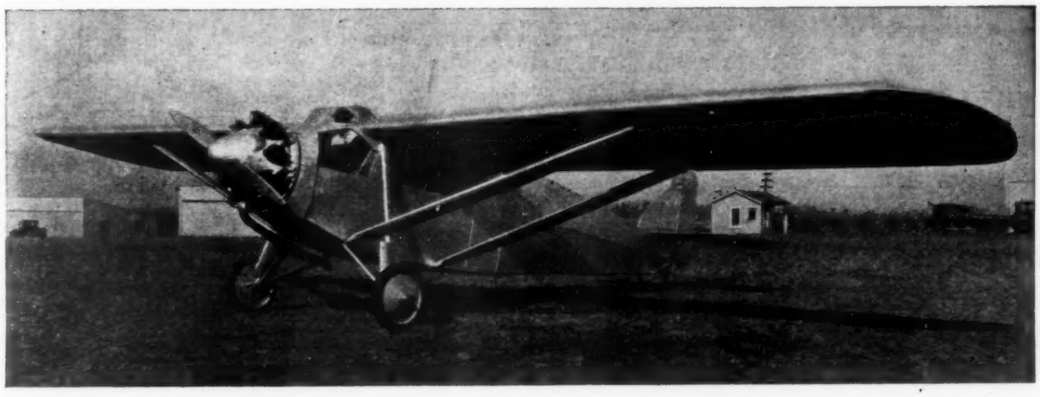


TRAVEL AIR CABIN MONOPLANE
Powered with Wright Whirlwind 200 h.p. Engine

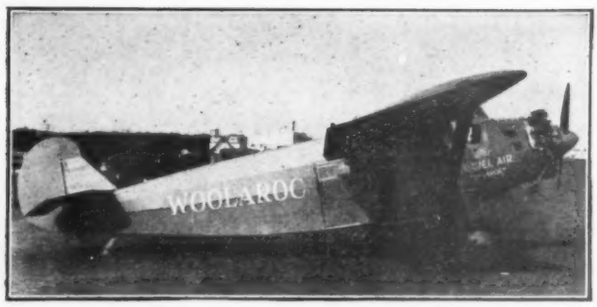
Equipped with

SCINTILLA

Aircraft Magnetos

SCINTILLA MAGNETO COMPANY, INC.

Contractors to the U. S. Army and Navy. SIDNEY, NEW YORK



Shown above is the "Woolaroc", used by Art Goebel in his triumphant San Francisco—Honolulu flight, one of the latest models produced by the Travel Air Mfg. Co., Wichita Kansas. The photograph at the right is another popular Travel Air ship.

Travel Air Planes
are Standard Equipped with
Eclipse Starters

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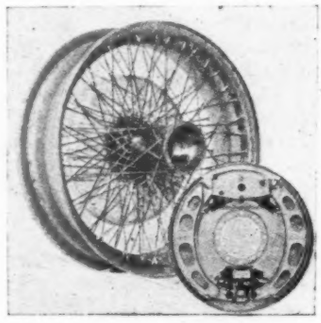

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The Central States "Monocoupe"

Small Two Place Closed Cabin Monoplane Powered With a 75 Hp. Detroit Air-Cat Engine Has a High Speed of 102 M.P H. and a Stalling Speed of 48 M.P.H.

THE CENTRAL STATES AERO CO., INC., Davenport, Iowa, is now well in production of its products, the "Monocoupe", a small two-place closed cabin monoplane powered with a 75 hp. Detroit Air-Cat engine. The gratifying performance of the first plane built resulted in the company announcing its production plans some five months ago, and at present one Monocoupe is being produced each week. According to the officials of the company it is expected to increase this output in the near future.

The Monocoupe is an externally braced, high wing monoplane having a high speed of 102 m.p.h. and a theoretical stalling speed of 48 m.p.h. The plane weighs 650 lb. empty and carries a useful load of 484 lb. It was designed by Don Luscombe and Clayton Folkerts of the Central States Aero Co. The stress analysis was by "Aerotech".

In the design of the Monocoupe, the load factor for high incidence was 6.5; for low incidence 4.5; for inverted flight 2.5 and for nose dive condition 2. In many places, due to the small size of the plane, it was necessary to work with the minimum sizes. In most main members, the strength is in excess of the required load conditions. The forward and rear wing struts are 14 per cent. and 12 per cent. respectively over the required load factors. The ribs have a margin of safety of 20 per cent. In the fuselage the weakest member is 13 per cent. stronger than the load factors require.

Cabin is Very Roomy

The cabin is very roomy, with the pilot and passenger sitting side by side. The seats are slightly staggered with the passenger's seat to the rear. The main controls are on the left, though dual control will be installed if desired. The cabin is 32 in. wide, 43 in. high, and 30 in. deep. It is upholstered with Ca-Vel and enclosed with pyralin windows. The door is on either side, depending upon which side the throttle control is located.

The fuselage is of welded steel tubing built into a Warren truss shaped to give plenty of room in the cockpit with a quick reduction in depth and width aft of the cabin. All tubing is 20 gauge (.035) with the exception of an 18 gauge member (.049) which takes the loads from the wiring brace struts. The landing gear and rudder posts are also heavier. The tubes satisfy Army specifications No. 10225.

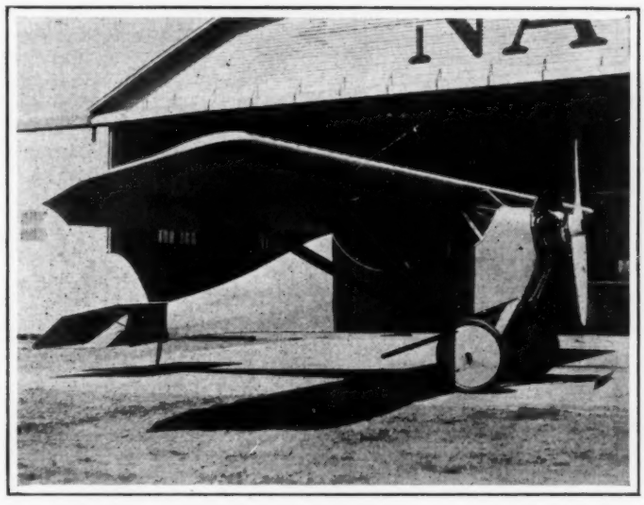
The engine mount consists of six chrome molybdenum steel tubes welded to a mounting ring at four points. The engine mount can be detached by removing four 5/16 in. nickel steel bolts which are under double shear.

The wings of the Monocoupe have a Clark "Y" section, with a span of 30 ft. and chord of five feet. Thus the wing, which is one piece, has an aspect ratio of six. In plan form the wing tips are elliptical. The wings are of wood covered with fabric and supported externally by two steel struts.

The spars are of selected airplane spruce spliced at the center by a vertical cut having a slope of one in twelve. Both spars have a routed I section. The forward spar has a depth with ratio of 5.9, the rear spar of 4.1. The forward and rear spars are located at 15 per cent and 65 per cent of the chord respectively. Both spars have ample margins of safety over the required load factors as determined by precise equations.

The ribs are built up of 1/8 in. basswood webs reinforced by spruce cap strips. Large rectangular lightening holes are cut in the webs but the chord members are of sufficient depth and strength to give the ribs a 20 per cent margin of safety over the required load factor with a spacing of 14 in. Each rib weighs 9½ oz.

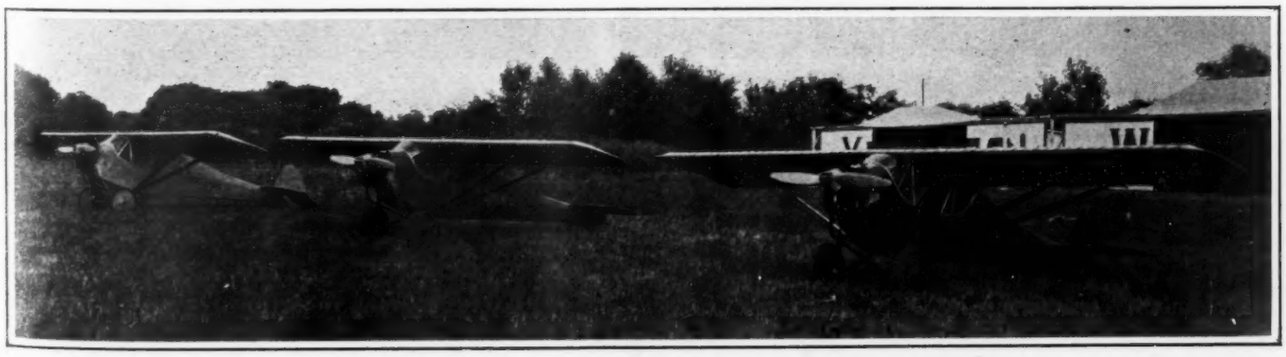
Compression ribs are very similar to the other ribs except that there are no lightening holes and are reinforced by rectangular compression members glued and nailed to each side centering at the drag bracing fittings. The single drag wire bracing is of the conventional type, No. 10 piano wire being used throughout. The webs of the spars tend to stiffen the wing from twisting.



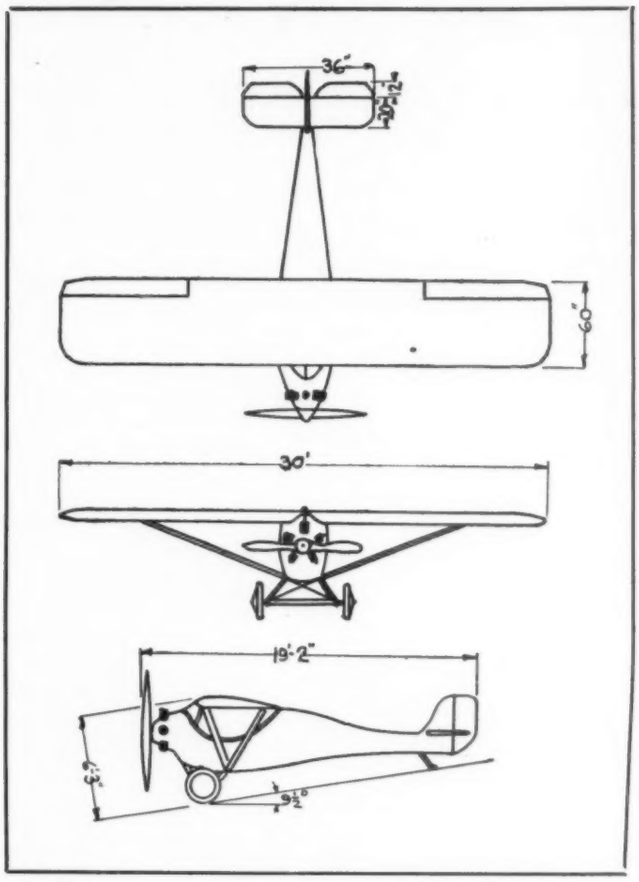
Side view of the "Monocoupe" powered with a 75 hp. Air-Cat radial engine.

The wing covering is of first grade airplane cloth stitched to the ribs at intervals of five inches outside the slipstream and intervals of three inches in the slipstream. Six coats of nitrate dope are applied to protect the surface. Berryloid colors are optional with the purchaser.

The ailerons are of rectangular form, directly attached to the main rear spar by three pin hinges. Both the spar and



A line up of three "Monocoupes" manufactured by the Central States Aero Co., Inc., Davenport, Iowa.



A three view drawing of the Central States "Monocoupe".

the torque member of the aileron are reinforced at the hinge points. Aileron area is 12½ per cent of the main wing area.

The wings are externally braced by tubular chrome molybdenum steel struts attached at slightly more than a chord length from the wing tips. The front strut is 1½ in. by .065 in., the rear is 1¼ in. by .049 in. The margin of safety of the front strut is 14 per cent and of the rear strut 12 per cent over the required load factor. Both front and rear struts come together at the fuselage. The cross member of the fuselage at this point consists of a 1 in. by .049 in. steel tube 32½ in. long having a margin of safety of 3.58 per cent under the maximum compressive load and 4.46 per cent. under the maximum tensile load induced by the struts.

The brace strut lower fitting is attached to the transverse tube of the fuselage by a long strap weld to insure full use of the struts strength. A central vertical fin prevents the fitting from bending under a compressive load. The fittings attaching the struts to the spars are fastened to the spars by two 5/16 in. and two 3/16 in. nickel steel bolts. No eccentric loads are induced by the struts.

All fittings have ample margins of safety. Struts are attached to the fittings by ⅜ in. nickel steel bolts. The attachment of the wing to the fuselage is by means of four 5/16 in. nickel steel bolts passing through single lugs extending from the spars, and going through a box fitting at the upper fuselage joints. The Monocoupe is powered with a radial, air cooled, five cylinder Detroit Air-Cat engine, developing 75 hp. at 2,000 r.p.m., and weighing 220 lb. This engine is equipped with two Scintilla magnetos and a Stromberg carburetor. Controls are actuated by the conventional hard wire sliding in an aluminum tube.

The gasoline is fed to the carburetors by gravity from the two tanks in the wings. Copper tubing and Tite-Flex is used for all fuel lines. The oil tank is situated behind the engine. Two gallons of oil are carried; the oil is circulated by an integral gear pump. The exhaust gases are led from the ports by 2¼ in. flexible steel tubing extending from each cylinder to a steel exhaust pipe under the fuselage, well away from the fabric. Eight 5/16 in. nickel steel bolts hold the engine to its mounting ring.

The chassis is of conventional straight axle, and spreader tubes with rubber cord shock absorbers. The tread is 4 ft. 9 in. The tail skid is one inch steel tubing, entirely full floating with no bolts to shear. All tail surfaces are made of welded 10255 tubing. The stabilizer is sturdy enough to permit a person to sit on its edge without excessive deflection. It is braced by two streamlined 10-32 wires. Neither the rudder nor the elevators are balanced. Controls are of conventional ⅛ in. flexible cable-and-pulley type with stick control for elevator and ailerons and pedal control for the rudders. Every Monocoupe is equipped with an oil thermometer, altimeter, oil gauge, tachometer and clock.

The manufacturer's specifications are as follows:

Overall span	30 ft.
Chord	5 ft.
Aspect ratio	6
Length	19 ft. 9 in.
Height	6 ft. 3 in.
Wing area	150 sq. ft.
Wing section	Clark "Y"
Weight empty	650 lb.
Weight loaded	1,134 lb.
Tail post to C. G.	2½ chord lengths
Engine	Detroit Air-Cat, 75 hp., at 2,000 r.p.m.
Wing loading	7.58 lb. per. sq. ft.
Power loading	15.13 lb. per hp.
High speed	102 m.p.h.
Theoretical stalling speed	48 m.p.h.
Fuel capacity	20 gal.
Fuel consumption	20 mi. per gal.
Range	400 mi.

Detroit to Jacksonville Passenger Service

The Dixie and Northern Air Line plans to inaugurate a passenger service from Detroit, Mich., to Jacksonville, Fla., starting Nov. 1. Ford three-engined planes will be used and the planes will be operated under an arrangement with the Stout Air Services. The route will be via Cincinnati, Nashville and Atlanta on the regular schedule, but when the weather is exceptionally fine the route will be via Knoxville, Chattanooga and Atlanta, as this route is nearly one hundred miles shorter.

The officers of the company are William C. Wakefield, president and manager; LaVergne B. Stevens, vice-president and general counsel; Jacob W. Goodyear, treasurer, and Roy R. Conger, secretary, all of Detroit.

The company has been privately financed by a group of Detroit capitalists and there has been no attempt to sell stock to the general public. In order to find out the demand for flights to Florida post cards were sent out to a list of some three thousand people. The responses to this were very satisfactory and reservations were made for almost forty per cent of the scheduled flights. At first two or possibly three planes will be used and the service will not be expanded until it proves itself.

All of the plans have been discussed with representatives of the Stout Company and service, and the fact that the Ford plane is used and the Stout service will fly, guarantees caution, efficiency and expert direction.

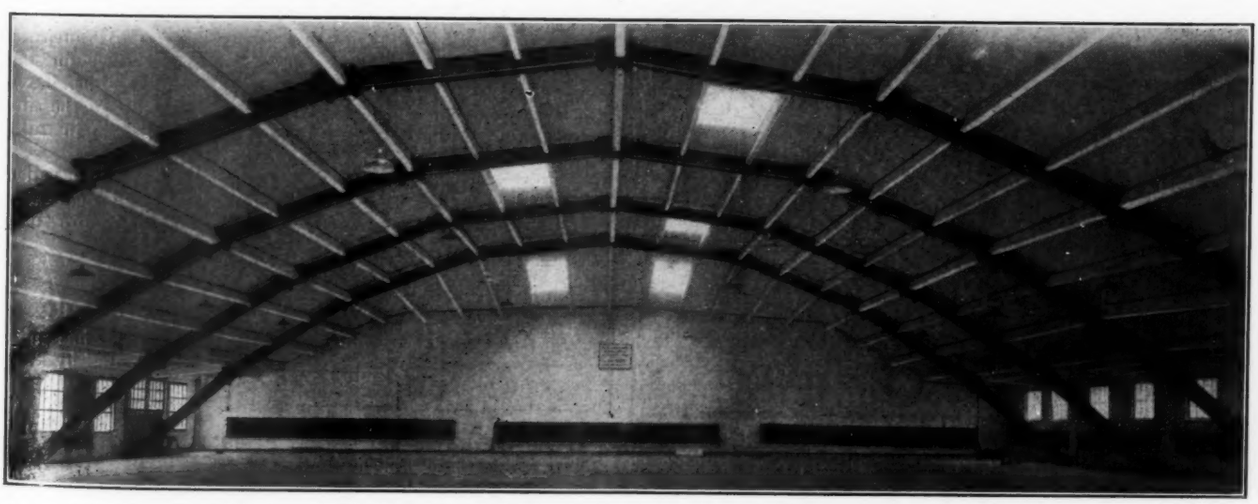
The through fare from Detroit to Florida, on the Dixie & Northern Air Line, is $100. Reservations must be made in advance to guarantee passage, and may be obtained at the office of the company, 1326 Lafayette Building; at the office of the Stout Air Service; at Ford Airport, and at places along the route to be announced in local papers.

According to the present schedule one round trip per week will be made and the service will continue from Nov. 1 to May 1928. The planes will be equipped with wireless and light refreshments will be served en route.

The officials of the Dixie and Northern Air Line completed during September a most successful tour to Florida by air. The Stout Air Services supplied the plane and stops were made at various points along the route in order to obtain the cooperation of the various Chambers of Commerce and other civic organizations along the route.

the ideal HANGAR for airplanes . . . NO COLUMNS, NO TRUSSES

ARCH ROOF CONSTRUCTION now offers the perfect building for all hangars, temporary or permanent. It gives perfect light and ventilation. It is the most economical to erect, and reduces fire hazards and insurance. Spans up to 200 feet and over. A request will bring further information and our service department will co-operate with engineers, contractors and all others interested.



One of the many designs of buildings practical for Arch Roof Construction

Patented January 15, 1924 and other patents pending

ARCH ROOF CONSTRUCTION CO., Inc.

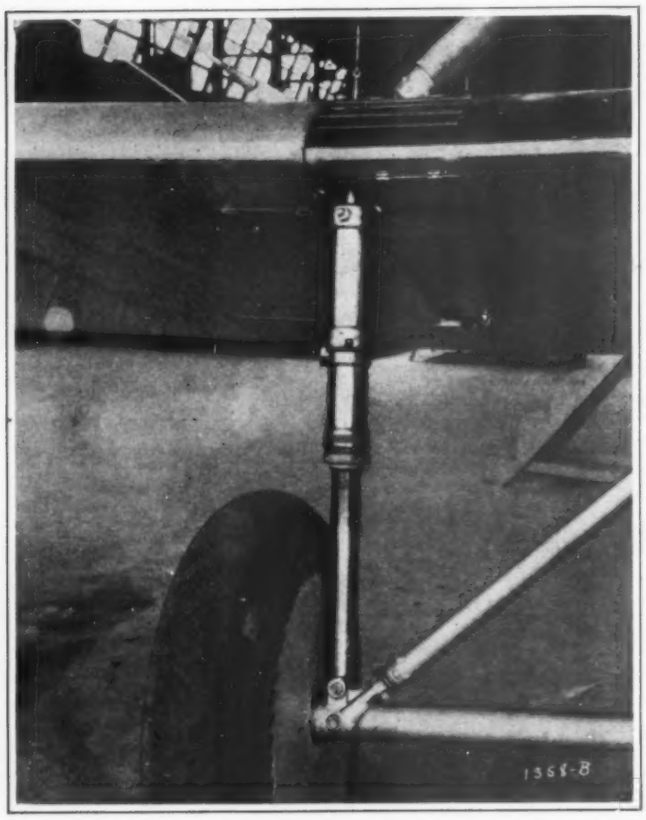
Engineers and Contractors

104 West 42d Street, New York City

Aircraft Trade Notes

Automotive Firm Enters Aircraft Field

The Cleveland Pneumatic Tool Co., Cleveland, O., manufacturers of pneumatic shock absorbers for automobiles, has entered the aircraft field, and is now producing a combination oleo and pneumatic shock absorber strut for airplanes of all types and weights. These shock absorber struts are



The Aerol shock absorber manufactured by the Cleveland Pneumatic Tool Co.

stocked in six different sizes having maximum load per strut from 1,000 lb. to 7,500 lb.

"Aerol" shock absorber struts operate on compressed air and oil; the air being used to carry the static load of the airplane and its contents. The shock absorber is designed to permit a telescoping movement whereby the impact between the wheels and the ground compresses the air and the stored energy thus created is then dissipated through the oil.

Activities of the Stinson Family

Word of the present activities of the famous Stinson family of fliers was obtained from J. T. Whitaker, aeronautical engineer of the Tidewater Oil Co., who attended the Spokane meet.

"Eddie" Stinson's activities as head of the Stinson Aircraft Corp., are of course well known. Marjorie Stinson is employed by the Bureau of Aeronautics, Engineering Branch, Navy Department, Washington, D. C. Jack Stinson, a brother, has recently completed in Detroit a monoplane of his own design. The pioneer woman flier, Catherine Stinson, is at present engaged in land development work in Tuscon, Ariz.

New York Firm Building Arch Roof Hangars

The Arch Roof Construction Co., Inc., New York City, constructor of buildings unobstructed by pillars or posts, is now manufacturing and erecting airplane hangars of the same type. This type of building construction has been used for some time for garages, exhibition halls, etc.

Arch type roof trusses are made in various types; the simple arch, the arch on columns with tie rods connecting the tops of the columns but clearing the floor, the two story building with roof of the upper story of either of the types of truss just mentioned, and the simple arch roof with a platform beneath it acting as a mezzanine.

This type of roof has been tested under many conditions. Some time ago a roof of this type was loaded with 90 tons of sand and left exposed to the weather. After a heavy rain accompanied by strong winds the load was removed from one side of the roof leaving an unsymmetrically loaded truss. After eight months the load was removed and there was no sign of distortion.

B G Spark Plugs Much in Evidence

Spark plugs manufactured by the B G Corp., of New York City, were much in evidence at the National Air Races. Of 93 planes checked by a representative of that company, 48 were equipped with B G plugs. These planes included Army, Navy Marine Corps and civilian machines.

Of the 48 B G equipped planes 19 were powered by Wright Whirlwind engines; 7 by Curtiss D-12's; 4 by Curtiss V-1550's; 3 by Packard 1500's; 1 by a Curtiss C-6, and the remainder by OX5's.

In all the high speed races for both military and civilian planes, as well as in the efficiency events B G plugs were used on the planes finishing first, second and third. In the New York to Spokane Class A derby the first five planes to finish were equipped with B G's.

N.A.T. Pilots Have Flown 7,146,030 Mi.

It was recently announced by the National Air Transport, Inc., Chicago, that pilots in the company's service on the mail routes between New York, Chicago and Dallas, Tex., have covered a total of 7,146,030 mi. or 76,799 hr. in the air. A large part of this was gained by the pilots while in military service.

Twenty of the twenty-one regular pilots and two relief pilots are former Army fliers. The one air mail man who was not in the military service, is said to have had more than 3,000 hr. testing planes for the Army.

N.A.C.A. Note on Local Factor Formula

The National Advisory Committee for Aeronautics has published a Technical Note on "A Load Factor Formula" by Roy G. Miller. Technical Note No. 263 is the result of the study of performance and structure of many military planes. It may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.

Derby Planes Used Hamilton Propellers

Hamilton adjustable pitch metal propellers were used on the planes that finished first and second in the Class B New York to Spokane derby (a Waco 10, OX5 and an Eaglerock OX5) and also on the Buhl Airster, (Whirlwind) that finished third in the Class A New York to Spokane derby.

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AIRCRAFT PATENTS

Copies of patents may be obtained by writing the Patent Office, Washington, D. C., giving the patent number and the name of the inventor. Cost 10c each.

Patent No. 1,637,769—LANDING AND TAKING-OFF STATION FOR AIRCRAFT. Walter Jay Ennisson, Brooklyn, N. Y.; Edith A. Ennisson executrix of said Walter J. Ennisson, deceased. 9 Claims. An aviation station comprising a roadway of relatively flat and self sustaining material suspended from spaced points and having a portion of said roadway along a side edge banked upwardly from the central portion.

Patent No. 1,637,774—GAS-INFLATED AIRSHIP. Karl Hurttle, Akron, Ohio, assignor to Luftschiffbau Zeppelin Gesellschaft mit beschrankter Haftung, Friedrichshafen, Ger. 5 Claims. An airship comprising a rigid hull, a plurality of individual gas cells inserted into said hull, two adjacent gas cells having a horizontal flue connecting them together, said flue constituting the sole means of communication to the interior of one of the two adjacent gas cells, the other gas cell having gas inlet and outlet fixtures.

Patent No. 1,637,789—DEVICE FOR GROUND TRANSPORTATION OF AIRSHIPS. Beno Schnitzer, Akron, O., assignor to Luftschiffbau Zeppelin Gesellschaft mit beschrankter Haftung, Friedrichshafen, Bodensee, Ger. 16 Claims. A device for transporting gas-inflated airships while on the ground comprising a frame and pressure resisting means for detachably connecting said frame both to a car and to the framework of said airship.

Patent No. 1,637,871—WALL CONSTRUCTION FOR AEROPLANE FUSELAGES. Anton Nosan, Cleveland, O. 1 Claim. An aeroplane fuselage having double air tight walls with a vacuum space therebetween and ribs at intervals between the walls in said space, said ribs being fixed to the respective walls, and heat insulating packing between ribs and walls.

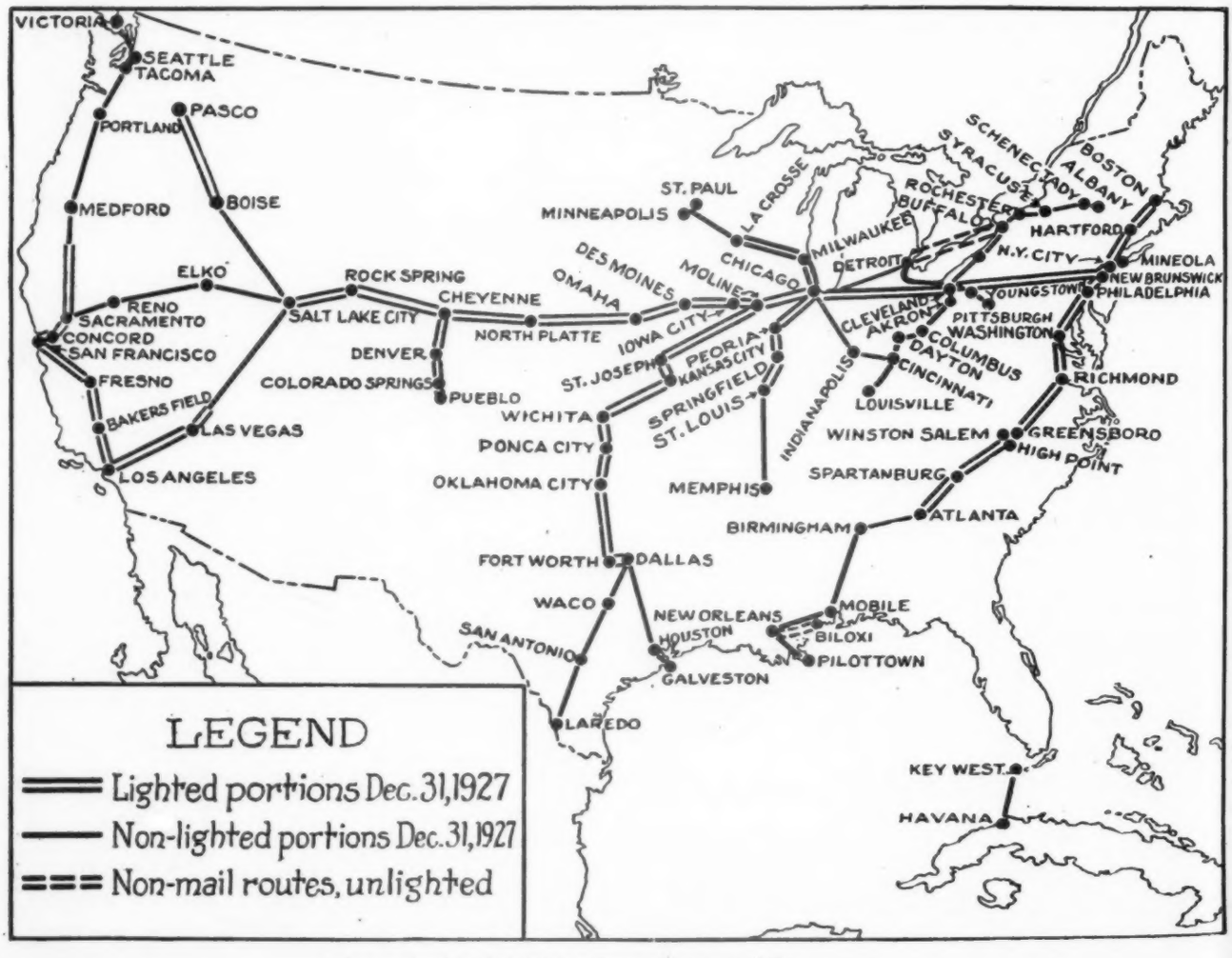
Patent No. 1,637,872—STEERING MECHANISM FOR AEROPLANES. Anton Nosan, Cleveland, O. 5 Claims. A steering mechanism for aeroplanes or the like, comprising a steering post, a vertical rudder mounted thereon, a pair of horizontal rudders mounted at opposite sides of the post respectively, upper brackets on the horizontal rudders, a plate loosely mounted on brackets and adapted to swing therewith when the horizontal rudders are both tilted in the same direction and to turn when tilted in opposite directions.

Patent No. 1,637,873—AIR-PURIFIER APPARATUS. Anton Nosan, Cleveland, O. 3 Claims. An aeroplane fuselage provided with an engine compartment, a control compartment, and an air purifier compartment, valves between said compartments, and means to conduct air through air purifier compartment and through said valves into the other compartments.

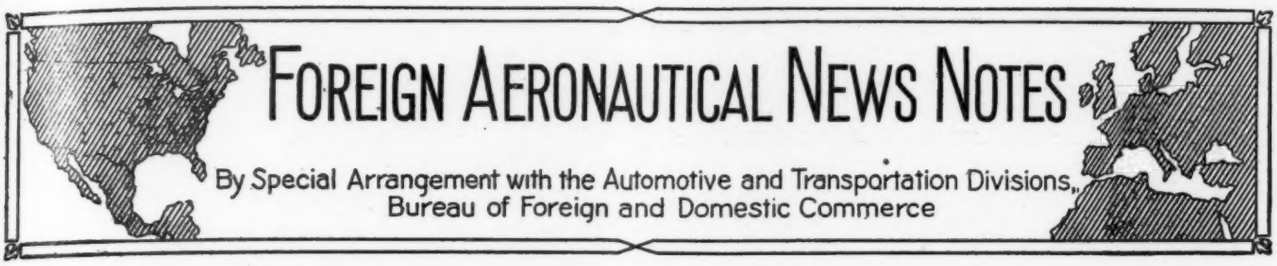
Patent No. 1,637,954—AEROPLANE WING. Fred E. McGrath, Clarksburg, Mass. 2 Claims. In an aeroplane wing, a trapezoidal shaped frame including longitudinal and transverse elements, a fabric covering on upper and lower sides of frame, a portion of covering being omitted at one side between intermediate transverse and longitudinal elements and the remaining portion being left loose whereby to be capable of bagging and providing a parachute effect in case of sudden and unexpected descent of plane.

Patent No. 1,632,811—APPARATUS FOR FLYING. Michael Watter, New York, N. Y., assignor of one-fourth to Maurice Baskin and one-fourth to Max Rhoade, Washington, D. C. 9 Claims. In a flying machine, a combination of a frame, a motor mounted thereon, a shaft directly connected to said motor and running longitudinally of said frame, sprocket wheels mounted on said shaft, endless chains operated by said wheels, said chains carrying a series of wings, a pair of closed loop rails, the side loop having a gradually diminishing radius of curvature paralleling said chains, the said wings being moved by the said chains in a linear direction and held at a fixed angle for the purpose of imparting a vertical lifting motion to the said machine, and a screw propeller located in front of said frame, for providing forward motion to said machine.

Patent No. 1,632,862—AIRPLANE. Jesse G. Vincent, Detroit, Mich., assignor to Packard Motor Car Co., Detroit, Mich. 9 Claims. In an airplane having wings, ailerons pivoted to said wings at opposite sides of the center of the airplane, a control stick, a control unit, operative connections between said stick and said unit and a connection between said unit and said ailerons whereby the movement of said stick will tilt the ailerons at the opposite ends of the wings in opposite directions, a second control member independent of said first control member and operative connections between said second control member and the aileron control unit whereby movement of said second control means will cause all of the ailerons to tilt simultaneously in the same direction to provide a braking effect for the airplane while said stick remains stationary.



A map drawing of the United States airways as of Dec. 31, 1927.



FOREIGN AERONAUTICAL NEWS NOTES

By Special Arrangement with the Automotive and Transportation Divisions, Bureau of Foreign and Domestic Commerce

Junkers Company Develops Persian Airways

Persian commercial airways are being developed by the Junkers Co., of Germany. This company has obtained a liberal concession from the Persian Government and is operating a combined passenger and mail service between Terhean and Pahlevi on the Caspian Sea; Teheran and Pahlevi and Qasr-i-Shirin on the Iraq border; Teheran and Bushire, on the Persian Gulf; Teheran and Meshed, near the northeastern border; and Teheran and Tabriz, near the Russian frontier. The heaviest traffic is between Teheran and Pahlevi, formerly Enzeli, where an elongation of this service makes a connection with Baku, and thus via Russia to Europe.

South American Aviation Activities

Although development in civil aviation in Latin American countries has necessarily been slow, the great distances and, in some cases, the rough country separating important business centers augur well for the new and rapid form of transportation by plane.

South American governments have appropriated substantial sums for the introduction of aircraft and training personnel to use them. Several American and European concerns have sent representatives, many of them fliers, to the several South American countries and these have aroused considerable interest in the possibilities of civil air transportation.

A company using seaplanes has been operating on the Magdalena River in Colombia for seven years. Another company has been operating a regular service between Buenos Aires, Argentina, and Montevideo, Uruguay, for more than a year and has been reasonably successful carrying passengers, mail, baggage, and express between these cities at reasonable rates and with small aids from the governments. The Province of Cordoba, Argentina, gives financial assistance to a company operating between Cordoba and Rio Cuarto and carrying mail, passengers, and goods. This company, like many others, also operates a flying school.

Two companies have been organized in Bolivia to provide civil air services between the cities of importance. One of these has been operating since September, 1925, between Cochabamba and Santa Cruz, some 350 mi. and has carried 780 passengers on the 145 flights made during the first seven months of operation. The Government has granted cash subsidies and other assistance for this company and the more recently formed one. The first air mail service in Chile was inaugurated by a Chilean company between Santiago and Valpariaso. One of the principal purposes of this service is to carry foreign mail from the interior city quickly enough to save a day in each direction. An American has been operating a taxi service in Peru since 1920 and he has carried business men, patients and tourists between several of the cities, especially those along the coast. The Government recently authorized the Ministry of Marine to inaugurate a service between Lima and Iquitos in order to make transportation between the capital and the Amazon river port more equal to needs.

An American firm has provided services between the Mexican oil fields and Mexico City for several years and this service is expected to be extended and made more regular. There have been services between Key West and Havana for short periods of time and there are several proposals leading to regular services in the West Indies, Cuba, Mexico and other parts of Latin America. A new service has been started between several cities in the southeastern part of Brazil.

French, German and Spanish interests have interested the Brazilian, Uruguayan, and Argentine Governments in services between Europe and South American countries. The French are concerned with the extension of their service to Dakar across the South Atlantic to Brazil and down the east coast to Buenos Aires. They plan to inaugurate service on this long extension late in 1927 and in the beginning they will employ fast steamers across the South Atlantic. The plans of German interests to extend airplane service over much the same route are not as fully developed but some German interests in cooperation with a company formed in Spain are interested in providing an airship service between Spain and Argentina.

Belgian Congo Aviation Expands

Under the authority of the Ministry of Railroads, Marine, Posts, Telephones, Telegraphs and Aeronautics, the Societe Anonyme Belge d'Exploitation et de la Navigation Aerienne (Sabena) has recently been granted permission to increase its capitalization from six to ten million francs, by the issue of 8,000 shares of 500 franc preferred stock and 8,000 shares of ordinary stock, without par value.

Sabena is said to have the monopoly for commercial aviation in the Belgian Congo, and under this same authority the Colony, as such, is authorized to subscribe to one-half of the new stock issue, with the proviso that the money so subscribed must be used by Sabena for the purchase of flying equipment for use in the Congo.

This will not result in the possibility of sales to Sabena of planes or equipment by outside agencies, since all construction involved will be carried out by S.A.B.C.A., the constructing subsidiary of Sabena, that holds licenses for the construction of a number of types of airplanes and engines.

License Fees for Engines Abolished

By an official decree, effective July 12, the Czechoslovak Ministry of Commerce has abolished fees for import and export licenses covering airplane engines.

New Company Will Operate in Canada

Universal Air Industries, Ltd., with head office in Regina, Saskatchewan, received a charter from the Dominion Government recently permitting it to establish and maintain regular services of aircraft of all kinds and to enter into contracts for the carriage of mails, passengers, freight, etc.; also to acquire and operate airports and to manufacture, export, import and act as agents for aircraft and motor vehicles.

Six Months Operation Cairo-Basra Route

The middle east air route of Imperial Airways, from Cairo to Basra, was operated at 100 per cent efficiency during the first six months of its organization. Every scheduled flight was carried out without interruption.

Venice-Alexandria Air Service Planned

The Societa Anonima Compagnie Italiana Servizi Aerei, has been formed at Venice to provide an air service between Venice and Alexandria, Egypt. The company will ask for permission to open the service, and some aid from the Government. Seaplanes of the "Santa Maria" type will be used.

New British Agency in Argentina

The Light Plane Flying School has recently been established in Buenos Aires by a British pilot and his associates.

It is believed that this concern will sell the de Havilland moth plane in Argentina and in addition will train pilots, and maintain and shelter private planes for their clients.

Side Slips

By ROBERT R. OSBORN

A race across a continent with a group of commercial planes powered with "pepped-up" OX engines is sure to be full of excitement, thrills and unusual incidents. We do think though, that a New York newspaper headline writer took one pilot a little too literally when he put the heading "Repairs Machine In Air" above this statement, "When I was flying about fifty miles east of Bellefonte it rained so hard that the magneto of my machine got wet and the engine suddenly stopped. I looked about for a landing place but all I could see for miles were tree tops. I worked on my engine while I was dropping and finally got one cylinder and then seven going. I pushed into Bellefonte on seven cylinders."

• • • •

Of interest, too, is the news that Mr. Levine's attempted non-stop flight to India in the Bellanca monoplane "Columbia" was halted by "adverse wind, a faulty gasoline pump and a new steel propeller that hindered the flight." We hope our airplane mechanics will let this be a lesson to them. Here, apparently, the record-breaking attempt was spoiled simply because one of Mr. Levine's mechanics thoughtlessly put the propeller on backward.

• • • •

This attempt to fly to India must have been a severe blow to the aviation enthusiasts who are sure we will have regular trans-Atlantic airplane service within a very few years. The newspaper accounts stated that Mr. Levine was anxious to fly back to America but because the weather was unfavorable had decided to go to India instead.

We should like very much to be on hand to hear the comments when the first load of passengers on the New York-to-Paris plane find that the pilot has taken them to Butte, Mont., instead, as the weather was much better out there.

• • • •

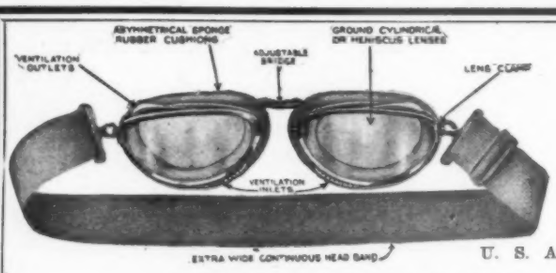
To have the land plane straight-away speed record broken by a twin-float seaplane flying a closed course, and a poor speed course at that, is disturbing to say the least. It seems that our aerodynamicists have barely time to get their conclusions into print concerning maximum possible speeds, power loadings and wing loadings, before the designers bring out the planes which better these maximums. Of course it would be rather late to do anything about it now, but we would like to ask the timers of the Schneider Trophy Race if they are sure they were watching the same plane all of the race. Those two Supermarines were very similar in general appearance, and it might have been a "couple of other fellows" they were timing, after all.

• • • •

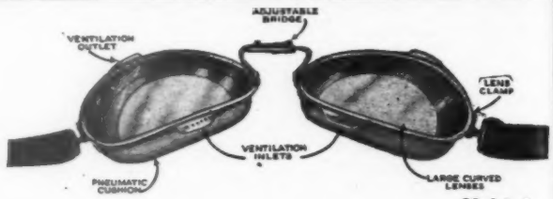
K. H. reports that he was out to Curtiss Field on Long Island recently, and, noticing a plane which was sputtering and coughing very loudly while its motors were warming up, went over to investigate. He claims he found it to be a tri-engined Fokker with the advertisement on its side "Old Gold Cigarettes. Not a cough in a carload." He wants to know if it might not be a good idea to drop a couple of cigarettes in the gas tank to cure this coughing while the engines are cold. We think this might be a very good suggestion, and pass it along to the advertisers for whatever it may be worth. The cigarettes are certain to stop the coughing of the engines,—if they are lighted before being dropped in the gas tank.

• • • •

We've noticed another airplane advertisement with a slogan of unquestioned truth, as far as its aeronautical application is concerned, "Maxwell House Coffee. Good to the last drop."



Model 6.
U. S. Air Service



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With ground polished and cylindrical bent Amber or Euphos (green) tinted lenses	12.75
With hand ground Meniscus white lenses.	15.00
With hand ground Meniscus Amber or Euphos (green) tinted lenses	16.50 per pair

LUXOR GOGGLES No. 5

Luxor Goggles No. 5 with first quality white lenses	$7.50
Luxor Goggles No. 5 first quality tinted Amber or Euphos (green)	8.25 per pair

LUXOR GOGGLES No. 6

Luxor Goggles No. 6 with first quality white lenses	$9.75
Luxor Goggles No. 6 with first quality tinted Amber or Euphos (green)	10.50
Luxor Goggles No. 6 with hand ground Meniscus white lenses.	15.00
Luxor Goggles No. 6 with hand ground Meniscus tinted Amber or Euphos (green)	16.50 per pair

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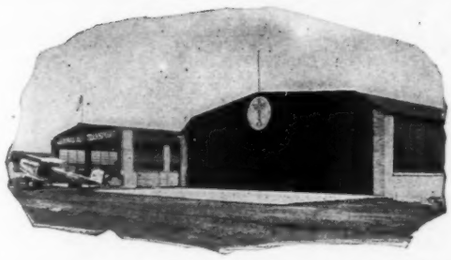

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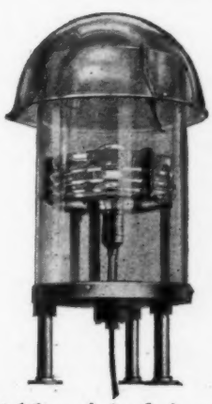

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AIRPORTS AND AIRWAYS

St. Paul, Minn.

By H. A. Lindbergh

The municipal airport at St. Paul will no doubt increase in importance rapidly as it has a number of advantages.

The loop district, which is plainly visible from the field, is only about a mile and a half distant so the paved road leading to the airport and passing over the new Robert Street bridge makes it convenient to reach this hop-off point.

B. Swenson and M. Emerson of the U. S. Weather Bureau are stationed here regularly and make observations of upper air conditions. They will be housed in the administration building that is expected to be constructed this fall.

An overnight stop was made here by the class A planes participating in the National Air Derby and a five minute or more wait was made by the class B types. This port was the one selected and used, instead of the Wold-Chamberlain field in Minneapolis as was previously reported.

There are two 300 ft. wide runways, one being 3400 ft. and the other 3600 ft., so large planes can be accommodated here. The large brick hangar with modern steel doors is equipped with lights for night landing and take-off.

There is a possibility that the Northwest Airways Inc., that operate the contract air mail route between Minneapolis and Chicago, will move to the St. Paul airport from their present quarters at the Wold-Chamberlain field in Minneapolis.

Milwaukee, Wis.

Leonard Ebert, manager of the Cudahy municipal airport, left Milwaukee, Sept. 26 on an advanced tour of twelve Wisconsin cities in an automobile with a white circle painted on its top. He will speak on making the municipal airport self-supporting and his tour will also herald the Wisconsin commercial airplane tour of ten planes, which will be held Oct. 11, 12 and 13.

Mr. Ebert, who has managed the local airport for the past five years will speak at Janesville, Monroe, Madison, Manitowoc, Green Bay, Sheboygan, Appleton, Oshkosh, Beloit, Kenosha, Racine and Portage. He talks from experience since he has been a pilot for the past 16 years and has been responsible for the success of the Cudahy airport.

Every one of the cities to be visited in the tour are planning big celebrations on the days the planes will land. At present eight of the ten planes have been signed up by various companies, and it is expected that all of the ten planes will be signed up very shortly.

Announcement of four of the planes and their pilots are as follows: John Woods, who will fly a Waco plane; Mark Hubbard, of Wausau, an Eaglerock plane; Lieut. Jerry Philips, a biplane, the Air-King, and "Cash" Chamberlain an Eaglerock, belonging to the Weeks Air Craft Co.

F. Trubee Davison, assistant secretary of war for aeronauties, will visit Wisconsin this month in connection with the tour which is being conducted under the auspices of the Alon-

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What is your choice? Do you want to use a round top float on which nobody but expert sailors can walk safely? Can you afford to scare away the passengers by difficulty in getting in and out of your Seaplane? Can you afford to hire an extra crew to assist the paying passengers, who cannot walk without assistance on your old fashioned float?

Do not forget that while the bottom of the float is important to enable the seaplane to get off, the top of the float is just as important to enable you to use the Seaplane commercially. If you want to do business with Seaplanes, you must provide for convenience of passengers.

The novel shape of Edo floats is correct on top as well as on bottom. The flat deck and the square stern will enable your passengers to get in conveniently without assistance. The shape of the bottom will allow you to get off with full load in any weather and from water either smooth or rough, either salt or fresh.

EDO AIRCRAFT CORPORATION — College Point — L. I., N. Y.

zo Cudworth Post of the American Legion. According to Hans Feldman, chairman of the Cudworth Post aviation committee, all planes and pilots will be thoroughly inspected by a representative of the department of commerce before the tour, which will start and end in Milwaukee.

According to Clayton S. Sager, secretary of the Milwaukee Air Transport, Inc., a new airport has been provided the county, with the purchase of sixty-one acres of land on the Fond du Lac Road, between Hampton Road and Villard Ave. A shop will be erected by the company with a series of hangars for Milwaukee owned planes, and the runways in all directions will be 2,000 ft. long. Mrs. Sager is president of the company and Waldemar Wehe, vice president. The group conducted an aviation school at Cudahy until recently.

Capt. Loren D. Mitchell, of Chicago, will be at the Cudahy airport three times a week for five weeks to give instructions in parachute jumping to Milwaukee students of flying. The aeronautical service now has 116 students taking flying lessons at the Cudahy airport.

Expansion of air mail and passenger service of the Northwest Airways, Inc., to include Madison, Wis., was announced by Col. L. H. Brittin, vice president and general manager of the company. This service will go into effect as soon as possible, the announcement stated following a conference of Colonel Brittin, W. P. MacCracken, assistant secretary of commerce for aeronautics, and Mayor A. G. Schmedeman of Madison. The present route will be changed slightly with planes flying south to Madison from Portage, then on to Milwaukee and Chicago.

The Midwest Airways, Inc., is a new Milwaukee concern organized for the manufacture, sale and repair of airplanes. Members of the company are Edw. M. Knaup, James H. Knaup, and Val. A. Zimmermann.

Oklahoma City, Okla.

By Ernest W. Fair

With Frank P. Douglas of Okemah at their head the American Legion of Oklahoma is beginning a plane storming plan to round up more members. They will take a half dozen planes and visit all sections of the state. Their present plans call for a start Nov. 4 with the final rally on Armistice day, Nov. 11.

"The Oklahoma", Travel Air cabin monoplane entered in the Dole flight by Bennett Griffin and Al Henley is to be sold by its backers and proceeds divided pro rata among those who furnished the backing money, Fred Capshaw, principal backer, has announced.

Charles Braun, traffic manager of the National Air Transport Co., recently visited Oklahoma City. A. L. Giacomini, geodetic engineer and Lieut. Isiaah Davis were here checking the Oklahoma Airway maps. Air mail here is maintaining a considerable poundage weekly with little variation in amount, thus indicating that a number of local firms are using it steadily.

J. E. Dinger of the Magnolia Petroleum Co. was among those who made the Dempsey-Tunney fight trip.

Syracuse, N. Y.

By John S. Pendergast

The feasibility of holding an airplane show in the New York State armory here sometime during the winter was discussed at a meeting of the Syracuse Chapter, National Aeronautical Association, recently. The members decided the plan a good one and a detailed program will be presented at the next meeting by a committee appointed by Gordon K. Hood, president of the chapter and manager of the municipal airport.

The show, members in favor of it argued, would attract thousands of Syracusans and keep alive their interest in aviation which would be naturally expected to wane during the winter months. It was explained that few of the many persons interested in aviation have had a chance to really carefully examine an airplane, its construction and its instruments. An airplane show would afford this opportunity, it is believed.

Extensive improvements will be made at the municipal airport during the late fall and early spring weeks, it was an-

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E. Mo. and S. Ill.—Bridgeton Aircraft Corp., 223 Pierce Bldg., St. Louis
W. Mo. and E. Kan.—Bennett Eaglerock Sales Co., 223 W. 12th St., K. C., Mo.
Okla. & Tex. Pan.—Southwestern Airplane Sales Corp., Britton, Okla.
N. M. & Cen. Texas—Browning Airplane Sales, Wichita Falls, Tex.
Southern Texas—Marion P. Hair, P.O. Box 420, San Antonio, Tex.
So. Cal. and Ariz.—Aero Corporation of California, Western Ave., at 99th St., Los Angeles
Northern California—Jas. L. Mayberry, 1210 B'way, Fresno
W. Washington and W. Oregon—Story Eaglerock Sales, 409 No. Yakima, Tacoma, Wash.
Wyo., Mont. & W. Neb.—Wyoming Airways, Inc., Casper, Wyoming
S. Dak. & N. Dak.—Rapid Air Lines Inc., Rapid City, S. D.
W. Kan. and E. Neb.—C. E. Steele, Dodge City, Kansas
La.—Louisiana Airways, 1712 Pere Marquette Bldg., New Orleans
W. Va. and E. Ohio—Lyle H. Scott, 328 2nd St., Marietta, Ohio
Utah—Rocky Mountain Airways, Salt Lake City
Mississippi—Tri-States Airways, Bry Block, Memphis, Tenn.
Maryland and E. Pennsylvania—E. W. Robertson, Alexandria, Va.
So. Carolina—Errett Williams, Spartanburg, S. C.
Me., N. H., Vt., R. I. and Mass.—Massachusetts Airways Corp., 1597 Main St., Springfield, Mass.
W. Penn. and N. E. Ohio—Lt. Jack P. Morris, Pittsburg Airport, Pittsburg, Pa.
Northeastern Indiana and Western Ohio—Ohio Aero Corp., 203 Carroll Bldg., Ft. Wayne, Ind.
Alabama—Major Aircraft Co., 712 Candler Bldg., Atlanta, Ga.
Nevada—Nevada Air Service, Reno, Nev.

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Plainville *Connecticut*

nounced by Mr. Hood. The field will be made into an all way one. It is likely the entire area will be plowed and graded and every inch of the field will be a runway.

Dr. H. E. Luther and George Freeman, Syracuse pilots who recently purchased new Waco planes, each have about 50 hr. on their machines now. Both expressed themselves as being entirely satisfied with their performances. Dr. Luther's is a Waco-10, Mr. Freeman's a nine.

The ten Syracuse young men who have signed up for flying instructions under Mr. Hood at the municipal airport are anxiously awaiting arrival of the plane they purchased.

E. R. Vadebonceour, secretary of the group, has filed notices of incorporation with each of the ten men. They will incorporate as a flying school under the laws of New York State.

The plane is expected this week and each of the men hope to get most of their training over with before snow flies. Many of them are planning to purchase new planes of their own next spring. Mr. Hood is planning to instruct half of the class each day. Each member will be given an hour or more a day. The Syracuse airport manager is well fitted to be an instructor in aviation. He was a civilian instructor during the war doing his bit with Eddie Stinson and other widely known pilots to prepare fliers for Uncle Sam.

The municipal airport will be kept open throughout the winter, it has been announced. The field will be kept sufficiently clear of snow to permit landing of planes at any time.

Worcester, Mass.

By Henry T. Ford

The board of directors of the Worcester Airport, Inc., have voted to name the new airport which they control in North Grafton, Mass., Whittall Field. The name was chosen to honor the Whittall family of Worcester, Matthew P. Whittall and his two sons, M. Whitin and James P. Whittall, being the moving spirits in obtaining an airport for this city. The name was also chosen to honor the late Matthew J. Whittall, father and grandfather of the Whittalls mentioned above.

Three planes are now housed at Whittall Field. M. Whitin Whittall has a Waco-10, Alfred Desjardin pilots a Standard and George Haven is flying a Waco-9. All three fliers live in Worcester and are making daily flights with passengers. The passenger business at the airport is reported as good.

The Worcester Airport, Inc., has purchased a tractor snowplow to clear the field during the winter months. The directors of the corporation believe that as the field is within four miles of the New York-Boston air mail route it will be well to have the field clear at all times to allow a flier to make a landing.

Pilots going from New York to Boston or vice versa can find the field by locating the center of Worcester and then flying due east for four miles. Another way is to locate Lake Quinsigamond, a winding lake three miles north of Worcester and flying to its southernmost end. The field is one-half mile south of the end of the lake. The prevailing wind is north of west.

Considerable trouble is being experienced in removing "rolls" from the runways at Whittall Field. The runways have been rolled several times during the summer but have failed to retain their smoothness. Officials of the Kenniston, Inc., builders of the field, state that it may be necessary to plow the runways before the frost gets into the ground.

The runways run east and west and southeast to northwest. Both runways are approximately 2,000 ft. long by 300 ft. wide. A low stonewall marks the northeast end of that runway. The runways are outlined with white gravel chemically treated to retain its whiteness.

Gardner, Mass.

Gardner, Mass., a city 37 mi. northwest of Worcester, is constructing an airport and will be ready for planes about Nov. 1. The field is being constructed by Kenniston, Inc., Concord, N. H. The runways will be approximately 2,000 ft. long and 300 ft. wide. A hangar 20 ft. by 60 ft. is included as part of the contract for the construction of the field. Financial aid from the city as well as private citizens is expected. The Gardner Chamber of Commerce is active in making the field possible.

Springfield, Mass.

By Charles Hanson Gale

A recent tour of the suggested sites for the Springfield municipal airport made by the mayor and the aviation commission of the city council marks another step in the progress of local aviation development. There was no official statement as to which field met with greatest favor by the commission but indications were that Dunn field, Longmeadow, now being operated under lease by the Springfield Airlines Company of which Harry Hermann is the head, would receive the commission's support.

Another meeting of the commission was held at the Hotel Kimball and plans were made to hold a public hearing on the airport question to meet some of the objections which have been raised by Longmeadow residents. Opposition by certain residents of that section to the development of Dunn field as a busy airport has taken form in a petition circulated through the town and signed by a large number of prominent residents. The outcome of the hearing and the petition will have considerable bearing on the immediate prospects of a municipal field.

A photographic and motion picture department has been added to the activities of the Massachusetts Airways Company here. Complete equipment for printing, developing, enlarging copying and drying has been installed and several modern cameras have been purchased. The plant has been erected in space near the office of Joseph E. Kerigan, the treasurer of the company. The cameras will be kept there and be carried to the field for operation.

William H. Mitchell of this city has been secured to supervise the photographic department. Mr. Mitchell has had considerable experience in all lines of photography and he hopes to develop a large business in aerial photographing and mapping. Contracts for such work have already been received, it is stated.

The Flying Club of Springfield, Mass., Inc., has been formed at the Nayasset club at Springfield after about two months of preparation by a small group of flying enthusiasts. The club started operations the day after organization as a Swallow plane had been purchased in July for the use of the club when fully organized and had been kept in commission during the summer.

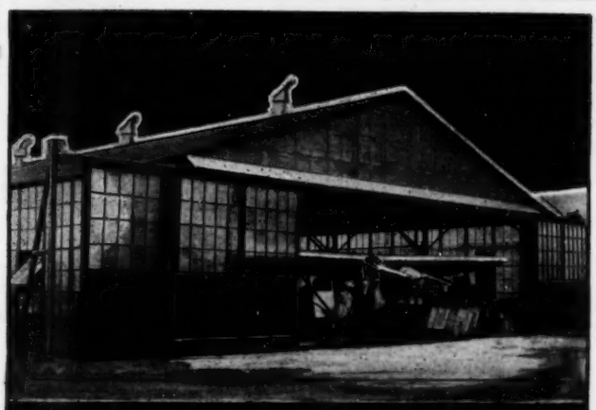
The club is organized on somewhat the same basis as a country club, for example, the finances have been based on a system of annual dues and operation charges rather than on the cooperative basis usually employed. That is, instead of a small group chipping in to buying a plane and then flying it until it is worn out without any special plans for replacement, the Springfield club has sought to establish a financial scheme which will renew the flying equipment from time to time and permit expansion to meet a growing membership.

One plane is the total flying property at present and, until the club feels that another one is warranted, the membership will be kept down to about 25. This will permit the original nucleus to get its flying training and provide an organization with flying experience as the foundation of the membership. The club at present has not reached its limit in membership but the interest shown by prospects since the organization was announced indicates that all vacancies will be filled soon.

The club is organized to provide flying training at a low cost, to provide a machine for those who are able to solo and to promote a general aviation program in the city. This will include lectures as well as supporting aviation policies.

One of the features of the club will be the associate membership based somewhat on the English flying club plan. These members will pay nominal annual dues and will be privileged to take part in about all the club's programs outside of the flying instruction. The members will be eligible to take hops with the club pilots at the same hourly rate the pilots pay for the use of the plane. A large number of aviation enthusiasts who do not care to learn to pilot have already expressed their desire to get behind the organization through this department.

Flying instruction will be given by Harry Hermann of Springfield Airlines. Harry has had years of student experience and has about 25 students of his own at Dunn field now. His mechanics look after the plane which will be kept in a



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Weight empty .....2100 lbs.
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Length ..... 28 feet
Pay Load .....1000 lbs.
Seating Capacity..Pilot and 4 Passengers

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High Speed (sea level) ... 120 M.P.H.
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Wright Whirlwind J-5
Horsepower .....200 at 1800 R.P.M.
Fuel Capacity ..... 70 gals.
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Marysville, Michigan

single plane hangar to be erected soon. Dunn field at Longmeadow has been selected as the club airdrome.

The officers elected are: Winsor B. Day, president; Charles A. Frazer, vice president; Donald McClench, treasurer; and Charles H. Gale, secretary: The directors are: Andrew B. Wallace, Frank H. Wesson and Victor H. Wesson. The other incorporators are: Wallace E. Dibble, Roland A. Packard and Charles A. Bauer. Almost all of these have had some experience in the air and several have handled the stick. Mr. Day is the only licensed pilot at present.

The Flying Club of Springfield at a meeting inaugurated its associate membership. Cards 1 and 2 in this class were given to Mayor Parker and Judge Haas as honorary members. Judge Haas has taken considerable interest in the formation of the club and has given a great deal of legal advice. He drew up the by-laws and assisted in the process of incorporation.

The associate membership carries with it the privilege of attending the club lectures and similar meetings and of taking flights with club pilots at the same rate now charged the pilot for the use of the plane per solo flying hour. This feature is modelled on the basis used by the English light plane clubs and is expected to attract many who have an interest in aviation and would like to take hops occasionally but who do not desire to learn to fly.

Guy E. Moran of this city is the president of a new aeronautical corporation to be known as Interstate Airways, Inc., with its base at Brainard Field, Hartford, Conn. The company will sell airplanes, teach flying and do passenger work. Lieut. Harry D. Copland of Hartford is the vice president and general manager of the company.

The activities of the company will be centered largely at Hartford this winter but next year plans call for establishing operating bases in several locations in Connecticut and Massachusetts. Some time each week will be spent at what has come to be known as the Eaglerock field at Agawam. The company will sell Eaglerocks.

Harry Hermann and Bill Thomas now have about 50 students at Dunn field. The rush does not seem to let up, they say, and they are keeping two planes constantly busy.

Harry has developed into somewhat of an after dinner speaker since he came to town. The Rotary and the other clubs have heard Harry tell all about the intricasies of flying and recently he added another notch to his record. He addressed the Monday Lunch Club at the First Church. He reported that the affair came near being a supper club after the question period started.

Cheyenne, Wyo.

By George R. Hand, Jr.

Three planes from the Colorado National Guard, with headquarters at Denver, stopped at the local airport en route to the state fair at Douglas recently for refueling. These planes bore a message from Governor Adams, of Colorado, to Governor Emerson, of Wyoming, and were piloted by Capt. Lewis W. Gross and Lieuts. Dan Kearns, Ralph. J. Hall and Charles Reeves, crack pilots of the squadron.

Several passengers from western points made a quick journey to Chicago by airplane to see the Tunney-Dempsey debate, among them Mayor C. Clarence Nelson, of Salt Lake City, who arrived in a plane piloted by Henry Boonstra.

Elmira, N. Y.

By Bennett H. Horchler

The new Elmira airport was opened recently. The opening ceremonies were attended by 25,000 people, Edward P. Warner, Assistant Secretary of the Navy, making the dedication address. This airport, which is reputed to be the closest to any town, is but two miles from Elmira. The field is ideal for flying and was made possible by the fine cooperation of Elmira business men. It is being operated by the Elmira Airport Corp. which was formed by these men for this purpose. The engineering work was done by Wm. E. Arthur & Co., the well-known firm of aeronautical engineers, while the construction was the work of local volunteers.

The field is a four-way one having the runways crossing about at right angles. One runway is 2200 ft. and the other one is 3800 ft. The 25 planes which were on the field at the opening ceremonies were easily taken care of by the fa-

cilities of the port. At present there is one hangar, but more will be built as traffic warrants. For night flying there are floodlights on the hangar and lights marking the runways. Of course there is the customary windcone which is also lighted at night.

The day following the opening, it was estimated that 40,000 people visited the field. This is certainly a fine showing for a town the size of Elmira, and the interest that was manifested is a mighty fine sign of the air-mindedness of the American public. The entire personnel of Wm. E. Arthur & Co. and their guests attended the dedication.

It is hoped that other communities will follow the worthwhile example that has been set by Elmira in helping to make America "first in the air".

Cincinnati, Ohio

By R. Alvin Hug

Lt. Hugh Watson had a unique experience at Watson Airport, Blue Ash, when he was forced into the role of lecturer by a large Sunday afternoon crowd seeking information concerning the art of flying. Having learned that Art Goebel flew from California to Hawaii in a Travel Air plane, the crowd gathered around Watson's OX-5 Travel Air and asked so many questions that Watson gave up flying for the time being and gave a lecture on flying and a demonstration of the controls of the plane. Parks Watson, manager of the field, cordially invites the public to ask questions concerning any phase of aviation, and therefore most visitors are "air wise" even before they take their first "hop."

C. S. Erwin, of Birmingham, Ala., thrilled the crowd at Watson Airport with an exhibition of spectacular stunts, while Sergt. P. A. DeWeese executed one of his famous parachute jumps. DeWeese has been attempting to break his delayed drop record of 2,100 ft., but has been balked by high winds and other adverse conditions.

The ER Express operated between Louisville and Cleveland by Embry-Riddle Company of this city, has been discontinued. This air line was in operation daily throughout the summer, and during this time 46,060 mi. were flown, 109 passengers and 360 lb. of express carried.

A model airplane contest was recently conducted at Lunken Airport by the Cincinnati Post. Scores of boys who had constructed models according to the rules published in that newspaper were on hand, eager to win the prizes offered. Edward Schutte was declared the winner when his model remained in the air 1 min., 34 sec. Robert Halsey was the runner-up with 1 min., 20 sec.

Lt. A. B. Wunder of the Embry-Riddle Company has been giving talks at the Y. M. C. A. and other civic organizations on aviation and the art of flying. He strongly urges everyone to vote in favor of the $500,000 bond issue for an enlarged municipal airport.

Blaine Johnson in his Waco-10 "Master Walter" and Capt. Jack Pattison in his Waco-9 "Jean D'Arc" have been doing much pleasure flying from Lunken Airport. Johnson sometimes does passenger-carrying when the planes of the Embry-Riddle Company are taxed to capacity.

Madison, Wis.

By H. C. Brunner

The Midwest Air Transport Co., of Madison, has purchased Eken field here to be used for a landing field which in the future will be known as the Madison Airport. The field is being rapidly put into excellent condition, and in addition to two small individual hangars already on the field, the company is erecting a large portable hangar. It will accommodate six planes.

The first official visitor to the airport was G. A. McDonald, vice president and chief pilot of the Mohawk Aircraft Corporation, Minneapolis, who flew a Mohawk monoplane. McDonald was very enthusiastic about the field, which covers 88 acres.

Madison's first air traffic signs have been painted on the roof of the new Orpheum theatre building and the First National Bank building as well as the roof of the Burgess Bat-

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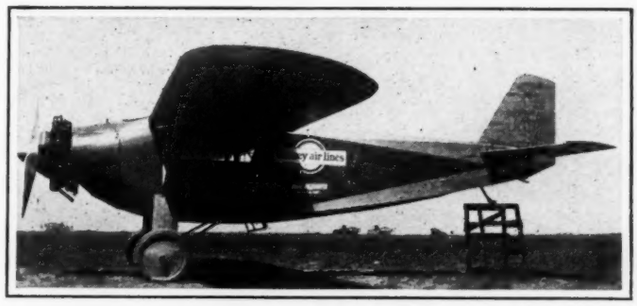

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tery Company. Large white arrows pointing to the landing fields with a figure indicating the number of miles to the field have been painted on the roofs.

Racine, Wis.

Flying instructions for 25 Racine youths who have joined aviation classes at Air City under Lieut. Edward Hedeen, will commence soon. By next summer he expects to turn out 50 local men as experienced commercial pilots.

Classes in technical instruction will be conducted during the winter months by Hedeen and next spring the students will polish up their knowledge by final hours in the air doing stunts and perfecting their technique in landing and take-off.

According to Dr. George L. Ross, owner of Air City, several large manufacturing concerns expect to purchase planes for the fliers with their names painted in the bottom to be used for advertising and publicity stunts.

Oshkosh, Wis.

At a recent meeting of the newly formed Oshkosh Airport, Inc., Richard Lutz was elected president of the organization. Other officers elected were A. W. Leupold, vice-president, and A. H. March, secretary-treasurer.

Early plans call for the erection of a concrete and steel hangar to measure 96x80 ft. The plans for the erection of the hangar will be submitted to A. R. Mensing, Chicago, who is one of the men interested in establishing a school of flying at the Oshkosh field.

Wausau, Wis.

Wausau's 100 acre airport south of the city is rapidly rounding into shape. Runways in six directions are at present being laid out 2,500 ft. in length. Hangars are to be built convenient to the runways, and other conveniences added, such as sideroads and pathways, permitting the entrance of thousands of people for any aviation event which may be scheduled.

Armonk, N. Y.

The Barrett Airways, Inc., have opened the first real flying field in Westchester County. At the present time they are operating on only a portion of their 68 acres, which when finished will enable them to have a first class four way field, with runways laid out in L shape, 1,600 ft. in one direction and 3,500 ft. in the other.

T. A. Barrett is president and treasurer of this organization, and through his effort and that of Leo Terletzky, secretary and chief pilot, much activity is taking place. A class for instruction has been formed and is progressing very rapidly. There are two planes on the field now being used chiefly for sightseeing, passenger carrying and instruction.

The Truscon Co., of Youngstown, O., is erecting a hangar which will be 60 by 100 ft. Additional hangars will be erected and by spring it is expected many hangars will be constructed and occupied. The company reports that they have 50 planes on order from the Travel Air factory at Wichita, Kans. The latest photographic equipment has been purchased and commercial photography and aerial survey will be carried on in this territory. A field office has been completed where visiting pilots can find required accommodations. The location of the field is considered ideal. It is eight miles northeast of White Plains, just east of the northern end of the Kensico reservoir. It is 30 min. by train from Grand Central station to White Plains.

The company wishes to extend to any flier who happens to be in the locality an invitation to visit the field. There are accommodations for refueling, repairs and storage.

Mt. Dora, Fla.

Mount Dora is now airmarked in accordance with department of commerce specifications, having a sign 12 ft. by 60 ft. painted in chrome yellow medium on wood letters raised above a black roof. The letters are eight feet wide and have a three foot space between them. The flat roof of the Mount Dora Hotel, one of the largest buildings in town, was selected

The

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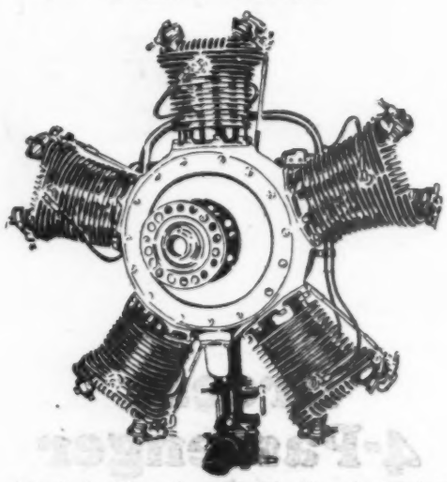

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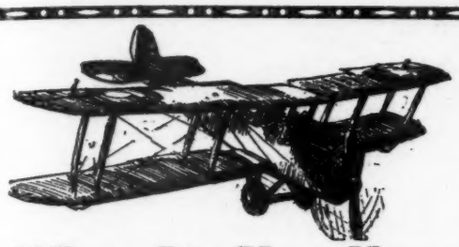

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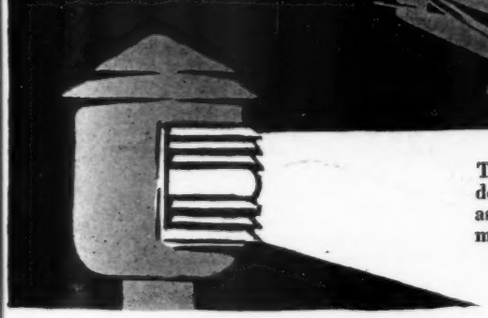

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for the purpose. An arrow 16 ft. long, painted the same color as the letters will point the way to the airport as soon as completed. Later other directional arrows pointing to principal cities will be added.

Baltimore, Md.

By Harry Rudo

A number of airport sites are under consideration by the commission appointed to select an air field for Baltimore. In each case the field is waterfront property and therefore may be used both by land and seaplanes. A million and a half dollars has been appropriated for the purpose, and it is expected that the airport will be as modern as any in the country.

There has been on display in the showrooms of a prominent automobile dealer an airplane of a local aircraft company. The plane was beautifully painted and made quite a drawing card, not only for the airplane company, but for the automobile company as well.

The giant Sikorsky of the United Cigar Stores Co. recently stopped at Baltimore and was visited by a throng.

UNITED STATES AIR FORCES

Bolling Field, D. C.

Falling in line with the recommendations of the Interdepartmental Board, composed of representatives from the Army, Navy and Department of Commerce, all towers and flag poles bordering on Bolling Field were painted orange, white and black. It was found that in foggy weather the orange shows up better than the black and white formerly used. Consequently, in all weather, the three-color combination affords a warning which is particularly effective.

While on a recent inspection trip in connection with the Visual Inspection System as installed at the various Air Corps posts, Major C. L. Tinker, of the Inspection Division, Office Chief of Air Corps, and Lieut. Price, of Bolling Field, were caught in a fog which suddenly closed in from all sides. At this time the pilot, Lieut. Price, was proceeding between Uniontown and Cumberland over the worst country along the entire Washington to Dayton route. Below him lay nothing but trees and rocky hillsides. Turning back along his course Lieut. Price picked out the only field in sight, a hilltop at 2,000 ft. altitude. A perfect landing was made. The field, however, was so small that a most favorable wind was necessary before a take-off could be attempted. When the wind was right, the plane was successfully flown to Bolling Field, minus passenger and baggage.

Army Air Orders

Capt. Ira C. Eaker, Air Corps, relieved from present assignment and duty in office of Chief of Air Corps and will report to Asst. Sec. of War for duty.

Sec. Lt. Walter S. Lee, Inf., is detailed in the Air Corps. He is relieved from assignment to the 11th Inf. and from duty at Fort Benjamin Harrison, Ind., and will proceed to Brooks Field.

The following officers of the Air Corps Res. are ordered to active duty from cities indicated to San Francisco, reverting to inactive status Oct. 15: First Lieuts. Edward Valentine Pettis, Berkeley, Cal.; Samuel Sanford Metzger, San Jose, Cal.; Bernard Michael Doolin, Oakland, Cal. and Sec. Lieut. Stuart Bell Davis, Los Angeles, Cal.

Capt. John Jay Davis, Air Corps Res., Oshkosh, Wis., to Chicago.

Sec. Lieut. John Adams Austin, Air Corps Res., Chicago, to active duty Mitchel Field, reverting to inactive status June 30, 1928.

Capt. Ernest Clark, Air Corps, Chanute Field, to Langley Field.

First Lieut. Arthur I. Ennis, Air Corps, Chanute Field, to Washington, D. C.

Capt. Robert W. Corrigan, Air Corps (Inf.) is relieved from detail in the Air Corps. He is relieved from further duty and station at Fort Sam Houston and is assigned to the Infantry of the Sec. Div., Fort D. A. Russell, Wyo.

Capt. Louis Stoker Connelly, Air Corps Res., Dayton, to active duty Wright Field, reverting to inactive status Oct. 30.

Capt. Willis H. Hale, Air Corps, relieved from assignment and duty Langley Field and will report to commandant Air Corps Tact. Sch., that station, for duty.

First Lieut. Robert W. C. Wimsatt, Air Corps, is assigned Aberdeen Proving Ground upon completion of his tour of foreign service.

First Lieut. Ames S. Albro, Air Corps, is assigned to duty at the San Antonio Air Depot, Texas, upon completion of tour of foreign service.

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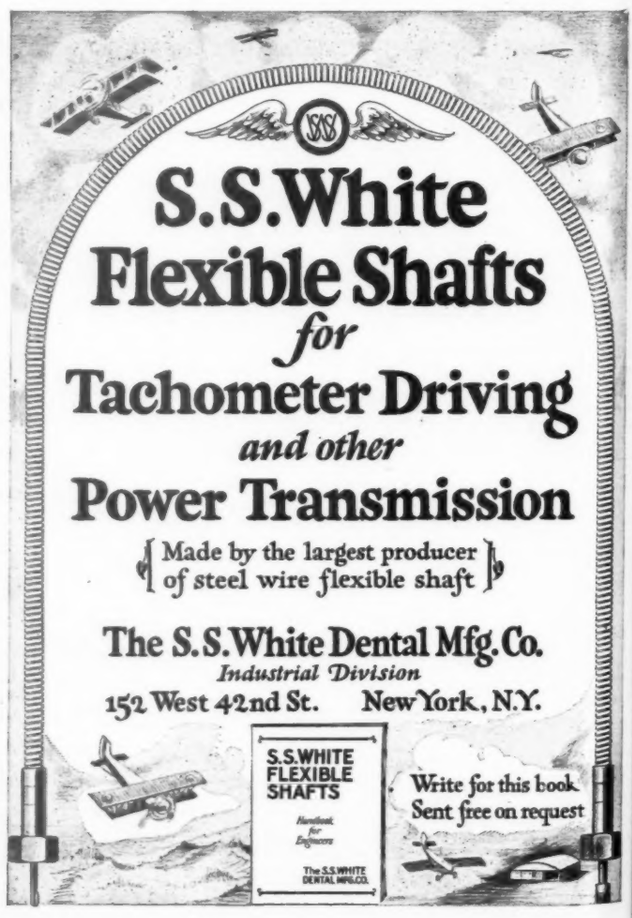

INDEX TO ADVERTISERS

A. C. Spark Plug Co. 903
Advance Aircraft Co. 859
Aerotech, Inc. 920
Aircraft Service Directory 918-919-920
Air Transport Equipment 918
Alexander Aircraft Co. 905
American School of Aviation 911
American Trading Co. 920
Arch Roof Construction Co. 897
Arthur & Company, William A. 918
Austin Co., The 903
Aviation Service Corporation 918

Barber & Baldwin 909
B. B. T. Corp. 903
Buhl Aircraft Co. 908

Classified Advertising 921-922
Cleveland Tool & Supply Company, The 919
Consolidated Aircraft Corp. 856
Consolidated Instrument Co. 886
Crawford Airplane Corp. 919
Curtiss Aeroplane & Motor Co. 854
Detroit Aircraft Engine Corp. 910

Eclipse Machine Co. 892-924
Edo Aircraft Co. 904
Emb-y-Riddle Co. 919
Ericson, F. G. 919

Frampton, A. R. 920

G. & O. Mfg. Co. 917
Gates Flying Circus 920
Goodyear Tire & Rubber Co. 913
Gordon & Ferguson, Inc. 911
Guggenheim School of Aeronautics, Daniel 920

Hamilton Metalplane Co. 911
Hartzell Walnut Propeller Co. 920
Haskelite Mfg. Corp. 883
Hite, H. D. 920

Ihling Bros. Everard Co. 913
Ireland, G. S. 918
Irving Air Chute Co. 917

Johnson Airplane & Supply Co. 893
Johnson Co. 920
Johnson Motor Products Co. 920
Jostes Aircraft Supply Co. 918

Kansas City Trimming Supply Co., Inc. 894
Kerber, L. V. 920
Kreider-Reisner Aircraft Co., Inc. 919

Laird Airplane Co., E. M. 855
Ludington Flying Service, Inc. 919
Luthy, F. A. 918
Lyon, Cowdrey & Wilson 918

Macwhyte Company 893
Mahoney Aircraft Corp. 857
Mallette & Son, J. E. 918
Martin & Co., Glenn L. 861
Martin Company, Ned 919
Mayer Aircraft Corp. 912
Meyrowitz, Inc., E. B. 902
Mid-South Airways, Inc. 919
Monumental Aircraft Inc. 918

National Aeronautic Association 917
Nicholas-Beazley Airplane Co. 917-918

Paramount Welded Aluminum Products Corp. 893
Paxton Lumber Co., Frank 894
Payne Export & Import Co. 919
Perry-Austen Mfg. Co. 913
Pheasant Aircraft Co. 918
Pioneer Instrument Co. 884-918
Pratt & Whitney Aircraft Co. 860

Robertson Aviation School 899
Roebling's Sons Co., John A. 894

Sauzedde Corp. 894
Scintilla Magneto Co. 891
Service Steel Co. 918
Shaw & Co., B. Russell 919
Societe Lorraine Dietrich 858
Southern Airways, Inc. 920
Standard Steel & Bearings, Inc. 906
Standard Steel Propeller Co. 885
Stout Metal Airplane Co. 862
Strauss & Buegeleisen 920

Thurston, W. Harris 887
Titanine, Inc. 913
Travel Air Mfg. Co. 888-889
Truscon Steel Co. 907

University School of Aeronautics 920

Vacuum Oil Co. 890
Van Schaack Bros. Chemical Works 891
Varney Aircraft Co. 909
Vimalert Co., Ltd. 919

Wallace Aero Corp. 919
Where to Fly 915-916
White Dental Mfg. Co., S. S. 912
Wies, Inc., Geo. A. 919
Wright Aeronautical Corp. 864

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PUBLISHER'S NEWS LETTER

The great impetus that has been given to the popular interest in aeronautics this year has had some surprising effects. It has undoubtedly brought about what may be termed an aeronautical era of good feeling. Pilots are prouder of their vocation because the public has been insistent in its applause and praised the recent successful flights of daring fliers as representatives of a group who dare and do. Operators of air transport companies are no longer "seeing red" when they look over their balance sheets. The manufacturers of aircraft for the government are all apparently having great prosperity. The constructors of commercial aircraft never believed that activity of the present dimensions could come so soon. It would be natural to assume that the aeronautical magazines would also be sharing in this general prosperity. AVIATION in particular might be assumed to be on the high road to a great success. But there is always some drawback to too much good fortune.

* * * *

In the case of a publication in a field where there is an abnormally quick growth, certain conditions arise that may truly be classed as an embarrassment of riches, much as that condition is usually sought after. The circulation of AVIATION had been growing normally for several years without any solicitation on the part of the publishers. In the last two years the circulation doubled and since last January, this very substantial circle of readers has expanded half again. There the difficulty arises, for the increase has been among those whose interest is temporary and the result of popular excitement and cannot be considered immediate advertising prospects. As it costs several cents a copy more for just the printing and paper than is paid to the publishers by the subscribers, such additional circulation must be regarded as an additional tax on advertising revenue. A publisher gladly gives his readers his publication at a price lower than what might be called the manufacturing cost, because it helps in securing advertising. But, if so many purchasers want his paper, that he loses all the gains that come from advertising, a situation arises that must receive drastic attention. AVIATION finds itself in just this predicament. Three courses are open to it.

* * * *

The natural inference of the readers would be that as the circulation increased, the advertising rates should be raised. There are two very important arguments against this. In the first place most of the manufacturers of commercial planes are really not doing business on a very large scale and their volume of sales does not warrant their paying high rates for their advertising space. The second reason why advertisers should not be asked to bear all the expense of increased circulation is perhaps the most important. Practically all of the buying of aeronautical equipment is at present done by those professionally engaged in aeronautical occupations. The buying power of the aviation field is probably limited to five or six thousand people including, of course, the pilots. If the advertiser reaches these people he reaches his market, and there is no reason why he should pay for circulation which will not give him direct results. As a matter of fact, most of the advertisers are not interested in large general circulation. They prefer to appeal to what is termed the "buying power". As AVIATION has always reached this class, even when it had a fourth of its present circulation, the advertiser is little interested in assisting a publisher to enlarge his body of readers. Faced with this impossibility, two other methods can be considered.

* * * *

The subscription price could be raised from four to five dollars, that is from eight to ten cents as compared with fifteen cents on the newsstands. This increase has been given much consideration and whenever it is about to be adopted, the publishers visualize—to use a word that is very popular these days—they visualize their readers. Pilots, mechanics, designers, technical people, students; all pass before the mind's eye and the picture always wins over the better judgment of the more practical members of the staff. This reduces the problem to only one answer.

* * * *

The greatest sudden increase in the circulation of AVIATION has come on the newsstands. Thousands of persons wish to take their chance of getting or not getting every issue of the paper by buying weekly from a news dealer. This is the reason that it is so difficult to find a copy of AVIATION at the magazine stalls. They order a very few copies and sell out almost immediately. But it is evidently the curiosity seeker who is paying at the rate of $7.50 a year for what he could get for $4.00 through subscribing. And it is from this group that AVIATION decided it must secure a sufficient price to pay the mere production cost of the papers it buys. Therefore, the price of every issue has been increased to 20c or at the rate of $10.00 a year. It is to be regretted that this had to be done, but it is not as much of a raise as it sounds. AVIATION will still sell at five cents under the price of any other aeronautical publication and it still will give to all its newsstand buyers the opportunity of subscribing at four dollars a year.

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, of AVIATION published weekly at Highland, Ulster County, New York for October 1, 1927.

STATE OF NEW YORK } ss.
COUNTY OF NEW YORK }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Earl D. Osborn, who, having been duly sworn according to law, deposes and says that he is the Business Manager of AVIATION and that the following is, to the best of his knowledge and belief, true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, Aviation Publishing Corporation, 250 W. 57th Street, New York City; Editor, Earl D. Osborn, 250 W. 57th Street, New York City; Managing Editor, R. Sidney Bowen, jr., 250 W. 57th Street, New York City; Business Manager, George Newbold, 250 W. 57th Street, New York City.

2. That the owner is: (If the publication is owned by an individual his name and address, or if owned by more than one individual the name and address of each, should be given below; if the publication is owned by a corporation the name of the corporation and the names and addresses of the stockholders owning or holding one per cent or more of the total amount of stock should be given.)

Aviation Publishing Corporation, Earl D. Osborn, 250 W. 57th Street, New York City.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages, or other securities are:

None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is .....
(This information is required from daily publications only.)

Earl D. Osborn, Owner.

Sworn to and subscribed before me this 26th day of Sept. 1927.
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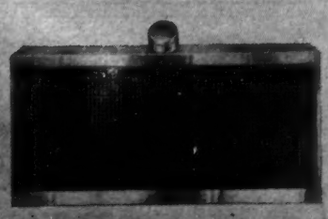

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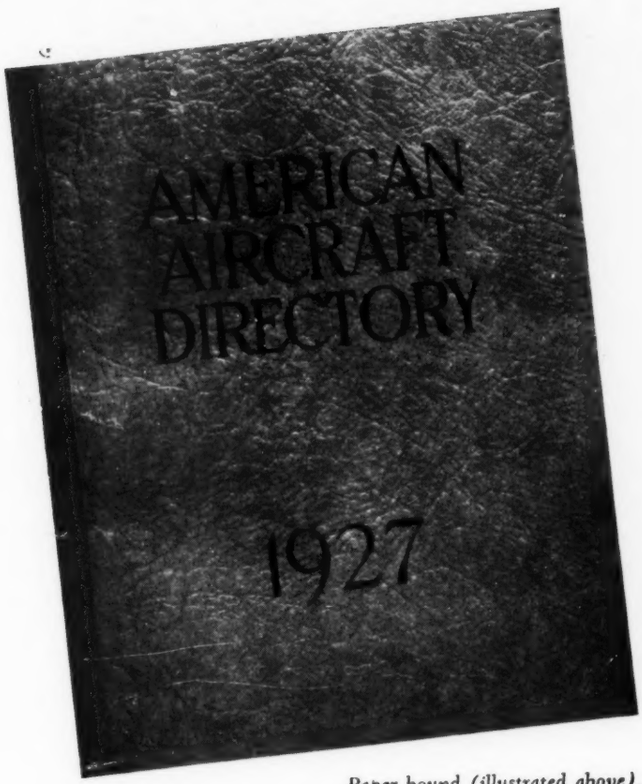

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